The Builder.

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The War and British Industry.

THAT "history repeats itself," we are forcibly reminded by the appalling incidents occurring at the seat of war, and by the localities in which they have taken place, as viewed by the light of an earlier chapter of French history. The events of to-day recall those of former times; there are important points of difference, doubtless, in the history that is being repeated, but there are also numerous startling coincidences. One hundred and eighty-five since in this current month of October, the edict of Nantes was revoked, by Louis XIV., who has been variously designated "Most Christian King," "the Great," "the Infamous," "the Cruel," and "the Profligate." The revocation effected a *coup d'état*, in which the best men of France were slaughtered, sent to the galleys, or driven into exile. The monarch of that time lost his head,—he had no heart to lose,—inflicted indescribable suffering, and also entailed incalculable loss upon France, by his unwise, cruel, and despotic action. With this self-sufficient and remorseless tyrant originated the well-known arrogant declaration, "*L'état c'est moi.*" His ruthless misrule made of France a furnace of affliction, a nation of slaves and profligates, a land in which good and free men could not breathe, a paradise for pimps and parasites. It would be ungenerous to dwell upon the points of resemblance between the elements and influences at work at that time and at the present. How startling it is to recall some of the scenes of suffering then,—Sedan, Metz, Strasbourg, Tours, Charenton, all have their names recorded; from each a large contingent of the best sons and daughters of France were hunted forth into exile, driven from their own land, to aid with their skill the people of other nations. Many of the refugees fled to Switzerland, Holland, England, and not a few to Prussia, in which the "Edict of Potsdam" was passed to give them welcome, and to secure for them equal rights and privileges. The Royal House of Prussia includes in its lineage Huguenot refugees, and the Queen of England has also the blood of the hunted French Protestants in her veins. Many of the soldiers in the hosts now invading France may be believed to be the descendants of the Huguenots. Have they returned to France inspired by Nemesis? Surely they have had vengeance enough, and would better honour their noble ancestry by now seeking the inspiration of the God of mercy!

Sedan, what sufferings it endured then, and has had to endure again. It was the birthplace of the great Huguenot Marshal Turenne, whose gigantic statue still stands in its market-place. It was until then the seat of a Protestant University, which was suppressed in the attempt to stamp the Huguenots out of existence and of memory. From Strasbourg have come to England, and have escaped to other lands, many able men. Metz, late a stronghold of French warriors, was a stronghold then of the Huguenot soldiers of the Cross. The United Kingdom, Germany, and other nations owe much to the hunted citizens of Metz, who, generations since, found refuge there. From the De Chenevix family of Metz and Lorraine, and from another Huguenot stock, the De la Tranche family, Richard Chenevix Trench, present Archbishop of Dublin, is a direct lineal descendant. Tours, menaced but not yet devastated, what a blow was inflicted upon its industry, its moral, intellectual, and religious life, by the Revocation. To speak of its industries alone, its 40,000 skilled workers in the silk manufacture were reduced to 4,000; its 8,000 looms were reduced to 100; of its 800 mills and works 730 were closed. Tours received a blow then from the effects of which it has never recovered. Fatal, also, was the effect of the Revocation at Lyons, where, out of 12,000 artizans, 9,000 of the best men and cleverest workmen fled. Charming Charenton! situated near the confluence of the rivers Seine and Marne, a few short months since one of the most lovely localities in the neighbourhood of Paris, or in the world indeed, is now a part of the belt of unsightly desert that surrounds the doomed city. The fiercely unholy Iconoclastic decree that went forth in 1685 respecting Charenton, was a much more barbarous ordinance than the order of 1870, to make waste the borders of the city. Mr. Samuel Smiles, in his interesting work on the Huguenots, thus refers to the doings of the destroyers at Charenton and elsewhere:—"The military *jacquerie* at once began. The very day on which the edict of Revocation was registered, steps were taken to destroy the great Protestant Church at Charenton, near Paris. It had been the work of the celebrated architect Debrosses, and was capable of containing 14,000 persons. In five days it was levelled with the ground. The great temple of Quevilly, near Rouen, of nearly equal size, in which the celebrated minister, Jacques Basnage, preached, was in like manner demolished. At Tours, at Nismes, at Montauban, and all over France, the same scenes were enacted, the mob eagerly joining in the work of demolition with levers and pickaxes. Eight hundred Protestant churches were thus thrown down in a few weeks."

The oppressions of Louis XIV. caused the flight of such of the Huguenots as had the means of escape. Many of these refugees found their way to England, but very few of them ever returned to France. The invasion of France which has resulted from the mistake—to state the matter mildly—of the whilom, or present rulers of the country, has caused a large number of the inhabitants of Paris, and of the provinces, to seek an escape from the horrors of war, and an asylum in neighbouring States. The permanent results, as affecting the industry of the United Kingdom, from the present French exodus, may not be expected to be as extensive or important as those which followed the immigration of the Huguenots. At that time the French were greatly superior to the English, and far ahead of them in various skilled industries.

The refugees, or their descendants, originally established, or greatly improved, some of the most important manufactures prosecuted in the United Kingdom. They introduced the art of paper-making, and erected the first paper-mills of England and Scotland. The descendants of the De Portal family have been for generations, and continue to be, the makers of the paper upon which the Bank of England notes are printed; the Brothers Fourdrinier, descendants of another refugee family, invented the paper-making machine. Crommelin, and others, established the linen manufacture in the North of Ireland. They introduced the silk manufacture at Spitalfields and other places; the fabrication of fancy textile goods at Norwich; the making of felt hats at Wandsworth; of Gobelin tapestry at Fulham; of crystal and glass at Savoy House, near the Strand; of lace and of silk taffetas, and in various departments of skilled industry greatly enriched the nation which gave them an asylum in their time of need. Their descendants have distinguished themselves, and have achieved the highest honours in the departments of legislation and government, of science, literature, theology, law, and finance. They are to be found now in both Houses of Parliament, in the Government of the country, in her Majesty's Privy Council, in deservedly high places everywhere. Names illustrative of this fact crowd upon the mind. Among the peers, Lords Taunton (Labouchere); Eversley (Shaw-Lefevre); Romilly, and other peers directly descended, or connected by blood relationship, with the refugee stock. Again, the names of Hugesson, Layard, Bouverie, Pusey, Du Cane, and many others suggest themselves. In science, there are, or have been, Papin Dollond, Roget, Rigaud, and others. In historical, polite, religious, and general literature, Abaddie, Jortin, Grote, Romaine, Drelincourt, Faber, Marryatt, Chamier, and a host of others. We have, or have had, Delane, and others, on the press; Fonblanque in statistics; Brassey (Brasseur) and Dargan (Dargent), railway makers; Pigou, as maker of gunpowder; Gillott, of steel pens; Courtauld, of silks; and Courage, of beer.

Such an important, varied, and valuable permanent residue is not to be expected from the present flight of the French; but it can scarcely be questioned that it will exercise a lasting influence in this country on some branches of artistic skilled production. The business relations between London and Paris, and England and France, have of late years been very intimate, and the interchange of products very extensive. Many businesses in Paris and elsewhere have been destroyed; many artistic skilled workers, whose products were, for the whole, or the greater part, destined for the London or the English markets, are thrown out of employment, their occupation gone,—for a time at least. There are large houses in the neighbourhood of St. Paul's and Cheapside that depended entirely upon Paris for the supply of certain descriptions of goods. The supply has been entirely stopped and the Paris agencies of these houses have been closed. Inasmuch as many of the French people now in London as involuntary exiles have always hitherto been willing workers, and not mere promenaders of the boulevards, it may be supposed that they are unwilling idlers, and that by the exercise of their industry, ingenuity, and activity, they may be enabled to resume production,—which they are already doing, indeed, to a partial extent,—may form new business connexions, and introduce new branches of industry, or extend and improve those already in operation,—and remain permanently amongst us.

The effect that the war will have upon British trade cannot, of course, be known until after its conclusion; it will probably be to stimulate greatly British industry and to increase production. The disturbing effects of the war are but partially indicated by the last returns of Trade and Navigation, published by the Board of Trade, which only come down to the 31st of August last. Some of the entries in the return are significant and interesting. As regards shipping, and the entries at British ports, the following items appear:—

Entries of Shipping at British Ports in August 1868, 1869, and 1870.

Nationality of Vessels.	Mo. ending Aug. 31, '68.	Mo. ending Aug. 31, '69.	Mo. ending Aug. 31, '70.
Entered.	Vessels.	Vessels.	Vessels.
Prussian	241	230	60
French	211	212	102
Cleared.			
Prussian	375	277	11
Hanoverian	99	79	1
Mecklenburg	99	73	0
French	377	316	309

Countries whence arrived.			
Entered from.			
Prussia	174	242	183
France	688	733	669
Cleared for.			
Prussia	360	344	10
Hanover	100	103	3
Hanse Towns	234	239	50
France	1,077	1,067	1,433

The imports of wine from France in the month, and in the eight months, ending respectively August 31st last, were in excess for the month, but show a slight decrease for the eight months. The imports from France of silk manufactures and ribbons show a considerable increase upon the month, and upon the eight months. The exports of coal to France, were 228,274 tons for August last, as against 147,053 tons for August, 1868; and, 1,626,114 tons for the first eight months of this year, as against 1,281,382 tons for the same period in 1868. The export of coal to Prussia was 78,655 tons in August, 1868, and 492 tons in August, 1870. As regards the exports of arms and ammunition, the return stops short of the time of the greatest activity. In August, 1868, there were exported 40,509 small arms, and 1,347,816 lb. of gunpowder; and in August, 1870, the smaller number and quantity of 15,999 arms, and 1,274,563 lb. of gunpowder. The exports of horses to France were 47 in August, 1869, and 603 in August, 1870. The exports of railroad iron to Prussia in the first eight months of 1868, were of the value of 36,564*l.*, and in the same period of 1870, 343,431*l.*; the exports of railroad iron to France were for the latter period of the value of 6,388*l.* The returns down to the end of the year, or of the present month indeed, may be expected to indicate much more serious and disastrous disturbance in our commercial relations with the countries, now unhappily diverted from their pursuit of the arts of peace.

FRENCH ENGINEERING BEFORE THE WAR.

The science and the practice of the engineer are receiving daily illustration in the course of the present war. The scientific corps of the army have attained an importance which is not undue, but which is certainly unprecedented. Even that great engineer, captain, and legislator, who commenced his career as a lieutenant of artillery in the regiment of La Fère, never contemplated the dominant importance which his favourite arm was to assume in the combinations of the strategist. Everywhere we see the same lesson. In the field the victory remains to the best ordered and best handled artillery. Courage and even tactical genius count for nothing before superior batteries. The tide of war spreads round the great railway lines, overflowing its banks, like the Nile, but still fed by the steady main stream of communication. The relation between the number of days that a fortress can hold out, and the number and calibre of the siege guns, is becoming more clearly than ever a matter of elementary arithmetic. The opinion laid down by no less eminent an authority than Julius Cæsar, that Fortune tells for much in war, must now be checked and modified by the axiom that Science tells for more.

While the progress of war thus taxes the utmost efforts of human skill, it, in some instances, ruthlessly destroys the noblest public works. At a time when so many of the engineering monuments of France are in danger of being swept away, it is unusually instructive to glance at some of the latest triumphs attained by the civil engineers in that country.

In regarding the historic progress of mechanical skill, it is natural to consider that the most simple inventions are those which we owe to the infancy of science. Moreover, complexity, accompanied, it may be, by striking elegance of arrangement, and giving evidence of patient and exhaustive thought, characterises the greater part of modern improvements in mechanism. But for the primary application of science to practice we must, for the most part, cast our glances back to a period when the human mind, if less full of knowledge than at present, evinced a more perfect mastery over the elements at its command. For the origin of the pendulum, indeed, we can only look back for a comparatively short period of time. But the invention of the pendulum closely accompanied the first sound investigation of the laws of falling bodies. In the same way the invention of the barometer, and the complete mastery of the theory of the pump, accompanied the discovery of the pressure of the atmosphere. A method of raising water, yet more simple than the pump, is associated with the name of Archimedes; and there is no reason to doubt that the problem of the reflexion of light, and the concentration of radiant beams, was practically solved by that great philosopher.

With regard to some of the simple utensils of human art, their origin is lost in obscurity. Some tradition of the earliest use of fire is preserved in the legend of Prometheus; but the form is not such as to make the information which it hides readily intelligible to ourselves. Ancient Semitic history is silent on this grand question; although it refers to the discovery of wine. Among the tools familiar to our hands, while the circular saw is barely a century old, and the ribbon saw not a tenth of that age, the saw itself is of immemorial antiquity. It may be considered that, like the knife, the axe, the arrow-head, and the wedge, it represents a natural subdivision of that series of original sharp flint cutting instruments which we know to have preceded the use of metallic tools. The scissors and the shears, on the contrary, must have been invented after metallurgy had made some advance, and probably after the discovery of iron. The invention of the bellows is probably coeval with that of the forging of metal, and must have preceded any successful attempt at smelting, except in the rudest manner, and from the richest ore. It is not generally known that the wandering tinkers of Italy—men who bear the traces of gipsy blood—make use of a form of bellows entirely different from that common to the Northern European nations. The gipsy bellows consists of a pair of bags of skin, which are closed by two straight pieces of wood. A loop on each of these bars serves for the insertion of the thumb and finger. A wind bag is worked alternately by each hand; the arm being lifted, and the finger and thumb opened, to admit the air, and then the finger and thumb being brought together, the slit is closed, the arm depressed, and the air is thus forced through a pipe into the fire, now on the right, now on the left of the blower; who squats on the ground between these primitive implements. The "blast and counter blast" of the smith's forge, referred to by the oracle of Amphiaraus as to the discovery of the grave of Orestes, is far more appropriately referrible to this Italic form of bellows than to our Teutonic valved chamber.

If the parent inventions from which all mechanical improvements have sprung are for the most part so ancient and so fruitful, no ordinary degree of merit must attach to any modern discovery which can apply, for the first time in human history, a well-known principle to a well-known want which it is fully competent to supply. A practical step of this nature has been taken by M. Beau de Moulin, an engineer-in-chief of the French Corps of Engineers of Ponts et Chaussées; and we consider it to be one demanding the most serious attention, and deserving the widest fame.

Every engineer and every architect who has had the responsibility of building a large bridge, is aware of the anxiety attendant on the easing and striking of the centres. The need of providing firm reliable points of support on which great weight may be safely brought, but which may be readily moveable at will, is not confined to bridge building. Among the many cases in which it is desirable to resist such a power at command may be mentioned the launching of vessels, and, generally, the dealing with enormous weight. The tendency of our recent practice, in this respect, has been in favour of the use of hydraulic power. This, however, is both costly and cumbrous, and requires an amount of previous preparation which consumes much time, and has interfered with the application of a method, the power obtained by which is no secret.

M. Beau de Moulin has availed himself of one of the well-known properties of sand,—of that mechanical fluidity of its particles, with which we are all familiar in the hour-glass. So simple and so beautiful is the application, that one hears of it for the first time with a positive blush of shame, that it should have been left to our own time undiscovered.

The method to which we refer is the simple and beautiful plan of throwing the bearings of the ribs of a centre upon sand, contained in iron cylinders, from which it is allowed slowly to escape at will.

Each principal is supported upon round props, fitting as pistons into cylinders filled with fine dry sand. These cylinders are of sheet iron, $\frac{1}{12}$ in. thick, 1 ft. high, and 1 ft. in diameter. At 2 in. from the bottom each cylinder is perforated with $\frac{3}{4}$ in. holes, which are stopped by common corks. To ease the centring it is only necessary to remove the corks. The sand immediately flows from each hole, forming a cone outside the cylinder. The formation of this cone arrests the further escape of the sand, and therefore stops the gradual descent of the piston which follows on the escape. As the sand is swept away, the issue recommences, and may be thus continued, or arrested, at will, till the centreing is entirely detached from the masonry. By carefully regulating the issue from the holes, the utmost delicacy of movement may be imparted to the centre. It may be eased at the same moment in each part, or either end of any principal may be made to descend with greater or less rapidity. The inventor, indeed, claims the power of graduating movement by millionths of an inch; and it is not easy to say what is the practical limit of delicacy attainable by the process. Not the slightest shock is caused by a mode of operation which appears to be not only theoretically but practically perfect. The idea would have done honour to the most illustrious name in the history of human science.

The use of this admirable method of replacing the maul of the carpenter, and the wedges of our early bridge builders, was tested on an arch of very unusual proportions. It was desired to construct a bridge over the Seine, in Paris, to connect the Rue du Louvre with the Rue de Rennes. The bridge had to span one of the locks of the Canal de la Monnaie. The springing of the arch, therefore, had to be clear of the canal walls, while the crown was kept down by the necessity of preserving the level of the roadway. The rise of the arch, thus determined, was about one-eighteenth of its span, or 6 ft. 11 in. in 124 ft.

The architectural harmony of the situation demanded that the new bridge should be constructed of stone. With a wise perception of the fact that it would not do to risk experiments in the midst of Paris, M. Vaudray, the engineer, took the precaution of building an experimental arch, before venturing to throw such an unprecedented piece of masonry over the Canal de la Monnaie.

The spot selected for the experiment was the quarry of the plains at Soupes, sixty miles from Paris, on the Bourbonnais Railway. One abutment was formed by the natural face of the rock, the other by a block of masonry, 27 ft. high, 49 ft. deep, and of the same width as the arch,—viz., 12 ft. It was built of rubble masonry, well bonded, and laid in Portland cement mortar, one part of cement to three parts of sand. Its construction occupied twenty days. The arch itself was built of seventy-seven voussoirs of cut stone, the depth of the key stone being 2 ft. 8 in., and the ring gradually increasing in depth to 3 ft. 7 in. at the springing. The beds and joints were carefully dressed and laid in Portland cement mortar, two parts of sand to one of cement. The thickness allowed to each joint was $\frac{3}{4}$ in. The joints next the skewback were not flushed until after the completion of the ring, having been kept open by means of fir wedges.

The arch was allowed to rest for four months on the centreing, which was then eased by allowing the sand to escape from the cylinders. The effect which was produced by the slackening of the centres was watched with the utmost attention. In an hour daylight was perceptible between the soffit of the keystone and the lagging. In two hours the centreing had entirely left the arch. It was then found that the crown had come down 6-10ths of an inch, and that the joints of the skewback on the built abutment side had opened 7-100ths of an inch. After the lapse of three days the arch was observed to have sunk 7-100ths of an inch more. It was then loaded with a weight of 360 tons, disposed over the whole surface of the roadway, an operation which

occupied thirteen days. The crown was brought down by the weight 3-10ths of an inch more.

Since that time nothing has stirred. The arch has been tested by allowing a weight of five tons to fall upon the roadway from a height of 18 in., without causing the slightest injury to the bridge. The triumphant execution of a masonry arch of such unprecedented proportions is a credit to French science and practice. It is unnecessary to insist on the accuracy of workmanship that is requisite for such a structure, or to point out how much the engineer was indebted to the method employed for striking the centres of his arch.

Reports on the great French engineering works have been published under the auspices of the Minister of Agriculture, Commerce, and Public Works. It is to be feared that we have seen the last of these reports that will be issued for a considerable time. An unrivalled collection of models, plans, and specifications, explanatory of bridges, viaducts, reservoirs, docks, and tunnels, illustrates the state and progress of civil engineering in France. It is much to be desired that so good an example should be followed in our own country. The records of our great public works, and the detailed information gained during their progress, should not be left to the enterprise of publishers, or even to the paternal vanity of engineers. The recent public works of London alone, including the Thames Embankment, the main drainage, the river bridges, the metropolitan railways and termini, are such as to entitle Great Britain to an eminent position among engineering nations, and should be recorded with such literary and graphic luxury as befits their historic importance.

The chief works of the Old World during the present quarter of a century are the tunnel under Mont Cenis, and the canal through the Isthmus of Suez. Both these important works owe their origin, if not their entire conduct, to French enterprise. It would be unworthy of the profession of the civil engineer, as carried out in this country, to entertain either jealousy or regret at the great progress which our professional brethren on the Continent have made since the date of the introduction of the railway system into France. Yet it is well that it should be borne in mind how much of this actual advance is due to the impulse, not only intellectual, but financial, of this country. English engineers not only wrought out the railway system in this country, but introduced it on the Continent. Their experience and advice were eagerly sought, and not only so, but the financial support which their names were once accustomed to command, proved to be a *sine qud non* for the start of many of these undertakings, which now form so important a part of the Continental system of communication. In France, indeed, we have been far more fairly dealt with than in other Continental countries. The highly educated and thoroughly organised corps of the engineers of the *Ponts et Chaussées* lost no opportunity of acquainting themselves thoroughly with the best results of our English expenditure. What the civil and mechanical engineers of France have accomplished during the last fifteen years would seem incredible to those who are not practically acquainted with the subject. In the manufacture of iron, the most decided progress has been made. The rails which were supplied from the French *usines* for the Chemin de Fer du Midi were of such a quality that they often snapped beneath the mere weight of the ponderous locomotives that a French house was then beginning to supply. A fitter, with a hammer and a cold chisel, could cut through any one of these rails, with ease, in twenty minutes,—that is to say, an English fitter. And so difficult proved the task of supplying even these inferior rails in adequate quantity, that a number of miles across the Landes of Bordeaux, for which the French factories were under contract to supply the rails, were actually laid with Barlow's rails, sent out from this country, to the great economy of time and increase in durability of way, no less than of safety to the public.

How thoroughly this state of things has been changed it is unnecessary to say. In fact, the only part of the case that now would be thought incredible is the statement of what formerly existed. In other parts of the Continent the normal hunger for English gold has led to frequent applications, down to within a comparatively recent time, for the services of the civil engineers of this country. Too often, however, has the transparency of the device become evident only a little too late, and the men whose opinions were welcomed as oracles while the subscription list was open, were asked by what right they interfered when all the available funds had been ensured.

While rendering a full meed of tribute to the energy, perseverance, and original constructive genius, that have opened a navigable highway from the Mediterranean to the Red Sea, we must not shut our eyes to the fact that the information which has been given to the public as to the actual procedure of the work has always been carefully *filtered*, not to say manipulated. It is necessary to bear this in mind, now that all we have of the undertaking is an account of the tonnage of the vessels that make use of it. But we have been given to understand, from very reliable sources, that the anticipations of Mr. Stephenson as to the deposit of sand in Port Said are fully confirmed. The actual differences of depth between two consecutive soundings, taken a few weeks apart, are so great that we do not like to mention them without being at liberty to publish the details of the surveys. To maintain a line of navigable channel, in place of a deep and commodious basin, is, we are told, the only present idea of the administration; and even this will tax the utmost energies of the dredging apparatus. Of course, this statement will be denied; but that will have little effect on the minds of English readers. We believe that it is strictly correct.

With regard to that other main link in the chain which was intended to connect London with Calcutta, English enterprise has not disdained to compete with the owners of the mules so familiar to the Alpine tourist, for the temporary traffic over Mont Cenis. The snows of the Alps have only occasionally arrested the trains of M. Fell, and he has shown himself able to contend with the minor difficulties of inclination and of traction. But the eyes of all the engineering world will be strained to watch what sort of a junction will be effected by the French and Italian engineers in the bowels of the Alps. Of the seven miles and 1007 yards between Modane and Bardonnèche we were told some time since that the Italian half was completed, and that the Italian engineers were straining their efforts to meet their French *confrères* as far over the frontier,—or rather as far under the frontier,—as possible. The success of the compressed air machinery has been admirable. We confess that we look with more anxiety to the accuracy of the level than to that of the line. Unless the utmost care has been taken, on each face, to take no levels without the precaution of using perfectly *even sets*, disturbance may have been caused by the varying attractive powers of the different strata, which no means exist for checking. When even it is effected, the meeting of the two halves of the tunnel will be one of the most critical and interesting facts in the entire history of civil engineering.

It is melancholy to see how the rapid progress of our professional brothers in France,—a progress that we have had repeated opportunities of watching with our own eyes, since Mr. Locke first went over to teach Frenchmen how Englishmen made railways,—is arrested by the mailed hand of invasion. Not only must progress in civil works be entirely suspended, but maintenance must in many instances become all but impossible. What can now be the traffic over the Mont Cenis? What the sources of income for French railway shareholders? The unexpected, and, to our mind, extremely improvident, readiness with which a new French loan has been grasped in the City, is no offset to the real depreciation of all property in public works in France. Actual destruction of works, although that may be reckoned by millions, not of francs, but of pounds sterling, is not the most serious evil; for the invaders must, for their own service, substantially repair most of the damage caused in order to arrest their march. While any debateable land exists between France under German power, and France under no power at all, havock is likely to be made there. But the sudden check to the whole circulation of national and of international traffic is a calamity such as we have never witnessed since the Stephensons first matured the invention that we trusted would peacefully bind together the civilised world in a girdle of iron.

Institution of Surveyors.—The first ordinary general meeting of the session will be held on Monday, November 14th, when the president, Mr. Richard Hall, will open the session with an address.

END OF "THE ARCHITECTURAL EXHIBITION."

The "Architectural Exhibition" is no more: it died a natural death, hastened by neglect, on Monday night last. The profession for a number of years has been gradually supporting it less and less, and although the council have been endeavouring each year to improve the condition of matters, it was thought at last that it was of no use struggling on any longer. A public meeting was therefore called, that the subscribers should decide as to whether the Exhibition should go on or not, and such was the interest taken in it by the profession, that not a single person attended besides the members of the council; it was therefore decided to stop. The two facts that increased space is promised by the Royal Academy, and that there are to be annual exhibitions of architectural drawings at South Kensington, have doubtless tended to bring about this result. We make the announcement with regret. Although not always particularly well managed, the Exhibition has done much good service in its time.

In the first year of its existence the late Sir Robert Peel, then at the head of the Government, paid a visit to the Exhibition; and while admiring a design for an ornamental brick building, asked one of the honorary secretaries the reason why such structures should not be erected. The secretary took great pains to explain to Sir Robert that it was entirely owing to the duty on bricks, and that if this were taken off we should get them better and, of course, much cheaper, and so we should soon have better buildings. The next session the brick duty was abolished, and it is a tradition in the Society that this conversation had something to do with the abolition. The good that has resulted from that measure, by the way, is, up to this time, very much less than was fairly expected.

We may have something further to say of the late "Architectural Exhibition."

WINTER EXHIBITION IN THE FRENCH GALLERY.

The French Gallery, No. 120, Pall-mall, is well known to all lovers of pictures, from the central convenience of its site, the comfort of its appointments, and the usual excellence of its contents. The present winter exhibition contains 211 cabinet pictures, by 142 different artists, English as well as foreign, among whose names rank those of Gerome, Goodall, Burgess, Ansdell, Cooper, Creswick, T. Faed, Le Jeune, Orchardson, and other favourite artists. The good opinion which the first glance at the walls led us to form, has been backed by the public; for in spite of weather the most adverse to vision, the number of pictures sold on the very first day of general admission was particularly large.

The picture which should head the list is one which can hardly be considered as finished. Painted on an absorbent ground, which gives it something the effect of fresco in miniature, it will, no doubt, by-and-by, receive a coat of vehicle that will bring more clearly out its marvellous and conscientious finish. It is (51), "Pifferari," by J. L. Gerome, two Abruzzese peasant men, and a lad, playing their national airs (melody it cannot justly be called), on their pipes. The misty, old-fashioned street in which they stand, looks like that of Rochester, or some equally unmodernised town. The expression of the performers is to the life. Their souls enter into their music, which, in their wanderings in Italy, has a devotional character; as they are accustomed regularly to play before every picture of a saint on the wall. The families who are related to the said saint (whether as proprietors or otherwise) invariably make some return to the Pifferari. The other picture by this artist is no less faithful a national study, (25) "A Bashi Bazouck." With the deference due to such a master of colour, we should suggest that this very striking portrait suffers from the unusually and inexplicably dark tint of the back-ground. The figure itself, with its barbarically rich attire, might have been taken from the walls of Karnak. It is of the veritable Egyptian type, and its deep bronze would have contrasted well with a desert sunset.

Mr. Goodall sends studies from the same climate, so rich with the finest models for the painter, from which he drew the inspiration for his noble figure of Jochebed, in the last Royal Academy Exhibition. He gives us here (12) "A

Coptic Woman"; (40) "Crossing the Desert," where the vast ungainly height of the camel throws the weary rider high up against the sky, and (76) "An Egyptian Shepherd Boy." Each of these pictures is an ethnological study. There is also a tiny gem by the same artist (62) "Cranmer going to the Tower," in which the carefully-drawn figures are painted very much in the tone of colouring used by Rembrandt, though they lack that master's breadth in the masses of shadow.

Mr. Burgess is seeking to appropriate Spain, as Mr. Goodall lingers in Egypt. (95) "A Little Bit of Scandal" is a very effective group of three beautiful Spanish women revelling in some very shocking story—no doubt, the detected misfortune of some intimate friend. The old canon who is coming to share the delight, with folded hands, and "Don't mind me, my daughters," on his face, is in perfect keeping with the scene. No. 195, by the same painter, is a "Portrait of a Spanish Lady," in which her Moorish blood gives richness and freshness to the lips, and shade and velvet to the eyes.

To the "Young Mother," whose attire may also denote a young widow, bending over her sweet sleeping child, is deservedly assigned one of the posts of honour. It is by L. Perrault (184). Another centre picture is "Padre Francisco," by E. Long (138); a heavy and well-fed priest, who has fallen asleep in the sacristy, breviary in hand. His open mouth is suggestive of a deep bass snore. A white-surpliced acolyte is taking the liberty to wake his reverence; in the interest of a woman who is entering the confessional in the adjoining church. One can fancy that the penances imposed by Padre Francisco will not be too severe.

Two pictures that might almost be regarded as companions, from size and number of figures, are the "Arrest of Franz Rakoczy, Second Prince of Hungary," by Julius Benczur (15), and "Charles I. in Vandyck's Studio" (201), by L. Escosura. In the first, the contrast between the dignified attitude of the Prince, and his air of comfort and protection to his wife,—who half throws herself out of bed in terror as armed men burst into the room,—is very good. In the latter, the artist has not caught the sad dignity of Charles Stuart. His under-lip has too much resemblance to Philip IV. of Spain, and the very broad grin on the faces of the courtiers is beyond the limits of Court manners. It is not a wholly satisfactory picture.

Mr. Orchardson's "Taming the Shrew" (47) lingers on the memory. The room, it may be said, is too large and bare; the attitude of Petruchio, or his pupil, too theatrically careless. Still, it must be remembered, he *is* acting. But the Catharina is inimitable—that is to say, if golden-haired blondes *can* go into such a fit of passion as is so truthfully indicated by the twitching fingers, the rosy cheek actually scratched, and the dusty, tumbled dress. A chair overturned on the floor adds its mute witness to the tale of the outburst. It is a very clever picture.

To recover from the fury of the fair shrew, and to escape the burst of tears with which she will break down in two or three minutes, turn to (122) "National Cavalry on the March during the Insurrection in Poland, 1863," by H. Gierymski, where a troop of lancers files across a snowy landscape—a truthful and striking picture. Another snow scene is (156) "Sintram and his Companions," by A. B. Donaldson, who has drunk deep of the mystic wonder of the story. The dreamy look of the fair-haired German boy, and the grim and quaint aspect of his companions, are admirably rendered: the "pilgrim" is more effective than the "little master."

We must not omit to mention (196) "The Sisters," by H. Le Jeune, a very charming pair, very prettily grouped; and "Miss Hardcastle" (211), by J. R. Dicksee, from "She Stoops to Conquer." Such a face is sure to conquer—stoop or no. There is a glow, almost Italian in intensity, and a wild drift of cloud, that would have charmed Turner, in (160) "Tide Drift," by W. J. Roffe. M. J. Morgan's "Coast Guard" (145), and "All True" (106), a sailor spinning some enormous yarn to an admiring and intent circle, have great force of expression and of character. The limpid purity of the atmosphere is given well by Jules Ruinart in (69) "Solitude, Baltic Shore," and (71) "Santa Lucia, Naples." But in the latter he has also given a brilliancy and cleanliness to this ill-odorous fish-market, which is purely imaginary. The blue waters of the bay, and the romantic people of Capri in the distance, are very faithfully given. There is a charming effect of a ray of sunlight on hill and lake in (48) "Easedale Tarn, Westmoreland," by S. R. Percy. The struggle of the green of the vegetation with the stern limestone of the mountains and the reinforcement of the brighter colour by the sunbeam are very happy. We must add a word of greeting for "Little Wasp," by L. Swift; the "Heron and Setter" (35), by R. Ansdell, R.A., in which the wounded bird is gallantly confronting the noble dog; and the "Lurking Foe" (7), by Guido Maffei—a most truthful and lifelike fox—we could fancy it to be the very one which, not a week ago, brought trouble to a Wiltshire parsonage, carrying off fifteen chickens: "And what can we do," said the vicar's wife, "for, of course, we cannot shoot a fox?" "The 14th of February" (65), by G. B. O'Neill, and Faed's *replica*, or first study, "When the Day is done" (70), should also be mentioned.

Our readers will thank us for sending them to spend a very pleasant hour in the French Gallery.

DRAWINGS OF THE HOUSES OF PARLIAMENT.

THE meeting of the Royal Institute of British Architects, to consider the decision of the Law Officers of the Crown as to the ownership of the drawings of the Houses of Parliament, of which we gave notice in our last, was held on Monday evening, the 31st ult., the President in the chair. After some discussion resolutions were passed; but as it was a meeting of members only, we must leave the Institute to make them known. We understand the First Commissioner has offered to submit to the Law Officers a case prepared jointly, if Mr. Barry will agree to abide by the result.

ON THE ELECTRO-DEPOSITION OF COPPER AND BRASS.*

IT is intended in this paper to put forward the present condition of the electro-deposition of copper and brass, with sufficient reference to the history of the subject, to make comparatively recent improvements well understood, but treating the process in a practical manner, and with reference to some improvements and manipulations that are adopted by the author.

Mr. Alfred Smee, in his "Electro-Metallurgy," dated 1851, gives much attention to electro-deposition of copper from acid solutions as well as from neutral salts, and he alludes to potassic cyanide as a menstruum for dissolving the copper, when articles of iron are to be submitted to the coating process. In mentioning the cyanide electro-coppering solution, Mr. Smee does not notice the fact that hydrogen gas is evolved during the deposition of reguline metal. In reference to the electro-deposition of brass, he has a chapter upon the reduction of alloys, in which he states that zinc and copper have been reduced contemporaneously, and their union afterwards effected by heat. Mr. Smee has evidently not been informed of Professor E. Davy's discoveries in 1830 (see "Phil. Trans.," vol. cxxi., pp. 147-164), nor of the labours of M. de Roulz in 1841, nor of Mr. C. V. Walker in 1845. Certain patented inventions, also referring to electro-brassing at this early date, *e. g.* Fontainemoreau's invention, No. 10,282 (A.D. 1844); De la Salzède's process, No. 11,878 (A.D. 1847); Fontaine-moreau's plan, No. 12,523 (A.D. 1849); Russell & Woolrich's discoveries, embodied in No. 12,526 (A.D. 1849); and Steele's patent, No. 13,216 (A.D. 1850).

The point of view, the sphere of thought, and the plane of action from which Mr. Smee was led to regard the electro-deposition of metals, were not favourable to the development and classification of facts that were subsequently recognised. He had only studied in detail neutral and acid solutions, and these, in conjunction with the physical laws common to all substances, led him to believe that the evolution of hydrogen gas was an evidence of the existence of the metal in the non-reguline form. Doubtless his admirable researches in relation to his "chemico-mechanical battery," involving as they did only the employment of acid solutions, tended to confirm his views respecting the influence of the evolution of hydrogen gas (during electro-deposition) upon the metal obtained. At the present time, however, it is well known that there are solutions which will deposit reguline metal during the copious evolution of hydrogen from the cathode; this takes place generally during the electro-deposition of alloys. Many alkaline solutions of single metals also exhibit this peculiarity.

It may be that Mr. Smee's views respecting the evolution of hydrogen from the cathode have unduly biassed him in regard to the theoretical views that he puts forward in his chapter upon alloys. These views will not stand the test of experiment and vigorous examination when alkaline solutions are employed. Considerations respecting "the removal of gas" weighed with him, in conjunction with the laws of the conduction of electric force through various media, in the result that he arrived at respecting the electro-deposition of alloys. This result was that alloys might possibly be electro-deposited without the evolution of hydrogen, and by means of an "intense voltaic current." Now that alloys are electro-deposited commercially in a reguline form, the scientific man of the present day can look back to the enunciations of Smee with great respect, but as incomplete. The ordinary accompaniment of this deposition is a copious evolution of hydrogen gas from the cathode; and, although an intense voltaic arrangement is usually employed, it is partially to compensate for the waste induced by the gas evolved, and to save time in the operation of coating. The author's improvements stop the evolution of hydrogen, and enable the electro-motive power to be reduced to that of a single Smee's cell.

Mr. Smee's views have been prominently put forward, because they present a definite standpoint, and because the general knowledge of the subject may be said to date from his able exposition of the position of the science as it was when his work was written.

If first principles are consulted, it will appear that, in alkaline solutions, the proneness to evolve hydrogen gas during deposition arises from the joint action of two causes, one electrical—classified as such by Mr. Smee,—the other chemical. The electrical cause is the small quantity of metal in solution in comparison to the electric power employed. This cause can be lessened or removed by using a solution that contains a greater percentage of metal than that usually employed. The chemical cause is the disposition of the metal of the alkali to go to the negative pole along with the heavy metal or metals, and thus, by being electro-deposited for an infinitely small space of time in contact with them, decomposing the water, thereby getting oxidised, and setting free the hydrogen as a secondary effect. This cause can be eradicated by providing in excess a decomposable compound radicle that will take a certain amount of combined oxygen with it, to the cathode, and thus, when decomposed, will enable the hydrogen that would otherwise be evolved to be oxidised into water.

In the case of brass, a solution containing the cyanides of the component metals dissolved in excess of potassic cyanide possesses the remarkable property of furnishing the copper and zinc to the cathode in such a form that, during deposition, they unite and form a true alloy. This tendency to form a true alloy is increased by the presence of a salt of ammonium, for, in connexion with copper (especially as cupric ammonide), the gas that would otherwise be given off is replaced by metal, this result being secondary and, in so far, a chemical reaction. It is usually deemed sufficient to charge the solvent solution (the potassic cyanide and ammoniacal salt solution) with brass by electrolysis; but this will be found on trial to evolve gas, and to be only workable by two Grove's cells. The author finds that it is practicably serviceable to add to a solution that is charged with not less than two ounces of brass per gallon, as much of the metallic cyanides as it will take up, and then it will probably take still more of the copper and zinc oxides respectively. Should this treatment not perfectly prevent the evolution of gas, the cupric ammonide is added,—about two or three ounces per gallon. The cupric ammonide may possibly carry the combined oxygen to the cathode; in that case the action may be expressed by the following equation:—

At the cathode before chemical reaction.

$$\left\{ Cu_2O,\ 4NH_3 + 4H_2O \right\} + H_2$$

Cupric Ammonide. Hydrogen.

At the cathode after chemical reaction.

$$= Cu_2 + 4(NH_3) + 5(H_2O)$$

Copper. Ammonia. Water.

* Read before the British Association, Liverpool meeting, Section B.

Malaguti and Sarzeau's formula for cupric ammonide being used. That is to say, before decomposition or chemical reaction takes place, the whole of the cupric ammonide, together with the eliminated hydrogen, goes to the cathode. After the decomposition or chemical reaction has taken place, metallic copper is deposited, ammonia is in solution, and water is formed.

In treating the ordinary cyanide copper solution for the prevention of the evolution of hydrogen, the zinc cyanides and oxides, mentioned in the instance of the brass solution, are left out.

When the evolution of hydrogen gas has been stopped by the means above set forth, a single Smee's cell is sufficient to deposit the alloy; thus showing that an intense voltaic current is not absolutely necessary, but that the process requires a certain condition of solution to give a perfect result.

The author prefers to use a menstruum containing potassic cyanide and neutral ammonium tartrate, in equal parts, and dissolved in five times their weight of water, to dissolve the brass in. This is then treated as explained above, to prevent the evolution of hydrogen. This solution is employed in conjunction with heat, and a single Maynooth cell, or a magneto-electric machine of suitable power. It has been found, with some electro-brassing solutions, difficult to deposit, continuously, a given quality of brass; with this solution the regulation of the proportions of copper and zinc in the alloy is made by altering the heat accordingly. If the solution is kept uniform, as shown by a ready test, it is very easy to deposit a given alloy at all times.

Before entering upon some practical points connected with the electro-deposition of copper and brass, it will be well to remark that acid solutions furnish a spreading deposit matted together, resembling the spreading of mortar by a trowel; whereas alkaline solutions furnish a deposit standing up from the receiving surface at right angles thereto, as the hairs of a brush stand out from the brush itself.

In coating wrought or cast-iron work, it is often desirable to coat with copper prior to electro-brassing: the alkaline bath should be employed above the temperature of the air, sometimes 160° Fahrenheit; this method of working promotes the contact of the coating. The article should be well cleaned, so as to have a metallic appearance, with a pickle of weak sulphuric acid, scrubbed with sharp sand, washed, scrubbed with a portion of the depositing solution, and then placed in the depositing trough. The electrical connexions may then be made, and the coating allowed to form for two hours or more. When a sufficient thickness has been obtained, the article is washed, and dried in hot mahogany sawdust.

The tarnishing of the coating increases its beauty, and does not impair the article, for the tarnish is not corrosive rust like the oxide of iron, but is a protective film. Two hours' coating will protect from rust in ordinary indoor work, but the best protection from rust (and this is serviceable even in damp air) is to give two hours' coating in an alkaline bath, and then let the article remain all night in an ordinary acid sulphate of copper bath; this plan utilises the matted coating as well as the vertical deposit. If desired, a brass coating may be given over the last-mentioned copper coating. By suitable mechanical arrangements, the articles in the acid bath, and the dissolving plates therein may be moved—preferably by a to-and-fro movement—during deposition. This treatment shortens the time of the deposit, and makes it (the deposit) uniform.

The roller which is exhibited was treated in this manner; it now weighs 125 lb., having 29 lb. weight of deposit upon it, the coating being $\frac{1}{16}$ in. thick. The other works show various applications of electro-coppering and electro-brassing. The price of the above-mentioned coatings, when a single Maynooth cell is used, is 2s. 6d. per lb. of metal deposited. When a magneto-electric machine is employed the cost is much reduced, viz., to 1s. 6d. per lb. of metal deposited.

The coating given by means of the improvements introduced by the author is superior to that given by any other known process. These remarks apply to the economy of the question, also to the solidity, perfection, and beauty of the result. In consequence of the non-evolution of hydrogen, the adhesion of the coating to the underneath iron or other metal is insured; also the coating is solid and compact instead of being more or less detached and spongy, as it is when hydrogen gas is allowed to be eliminated.

The ammonium tartrate solution used for electro-brassing, as well as the methods of preventing the evolution of hydrogen during deposition that are mentioned herein, form a part of the subject matter of specifications No. 1,540 (A.D. 1857) and No. 3,930 (A.D. 1868).

The uses to which electro-brassing may be applied have yet to be greatly developed, amongst the rest may be mentioned the prevention of rust, the giving an improved printing surface to type and electrotypes, coating the poles of electro-magnets for the prevention of the "residual charge" therein; covering rams, plungers, piston-rods, rollers, &c., with an adhesive and endurable coating; also lining cylinders, pumps, and iron vessels with copper or brass. The application of the processes that have been described to many purposes of ordinary life, such as railings, architectural ornaments, &c., will exemplify the good results to be obtained by the union of the strength of iron with the beauty of copper or brass.

W. H. Walenn, F.C.S.

WORKMEN'S INTERNATIONAL EXHIBITION.

The Workmen's International Exhibition, at the Agricultural Hall, Islington, and of which her Majesty the Queen was patroness, was closed on Tuesday, by a ceremonial, at which the Right Hon. W. E. Gladstone presided.

The proceedings were commenced by Mr. Paterson, one of the honorary secretaries, who expressed a hope that the union of rank, wealth, and labour by which they had been enabled to carry out this undertaking to a successful issue, so far as its real object was concerned, would in future be the rule and not the exception. The collection, which was about to be dispersed, had been, as an exhibition of works of merit, by workmen, the most successful that had ever been brought before the public. As a school of technical education, he thought such exhibitions could not be prized too highly.

The financial statement showed that there was a deficit of 1,000*l.*, for which it would be necessary to draw upon the guarantors. After various speeches,

Sir Antonio Brady expressed his conviction that the exhibition had been a signal success. As one of the guarantors he must say he had been repaid a hundred times over. He called on them to give a hearty vote of thanks to the Prime Minister who now happily governed this country, and who so worthily presided over the meeting. He complimented Lord Granville for the part he had taken in the foundation of a School of Art in the east-end of London, which was a great step towards technical education for the working man, and he called on the wealthy guilds of the city of London to come forward and contribute liberally from their funds for the reward of those inventors whom the juries had strongly recommended.

Mr. Gladstone then made an address, in the course of which he said,—In an exhibition like this, ladies and gentlemen, we are brought into immediate contact with that serious question,—but, if serious, serious only on account of its magnitude, not on account of its unsatisfactory character,—I mean the relations between this country and foreign lands; and we must all join in the satisfaction with which we have examined the beautiful works that have been sent here by the artizans and the artists of so many European countries, in some cases, like those of Italy and Austria,—countries that but a few years ago seemed to be locked in perpetual and deadly conflict, but have now, as we trust, once and for ever, joined the hands of peace and friendship. Long may they flourish in that career of animated and friendly competition of which we have such samples in this hall! Neither to us nor to foreign countries, ladies and gentlemen, does this free competition bring any subject for fear or apprehension; but it brings many subjects of admonition, of stimulus, and even of warning. It warns those who make an insufficient use of the faculties and facilities with which Providence has gifted them that if they will not turn their gifts to good account they must expect to be distanced by those who make a better use of the benefits of the Almighty. And is not that a very useful warning? If men are lazy, it is well that they should be stimulated. If men are wasteful and careless in production, it is well that they should be made vigilant and economical and thrifty. There is no country that has not, in the beneficent designs by which we are governed, allotted to it its own proper share in the business of production. It is sometimes said that it is now too late to hope—too late to carry on our pursuits in isolation from the rest of the world. It is too late, and thank God it is too late; because the intercourse by commerce of different countries makes not the diminution, but the augmentation of industry and employment; not the diminution, but the augmentation of comfort and of wealth; and that means, ladies and gentlemen, something still better than these—it means the simple, the natural result,—namely, that growth of friendship and goodwill which grows up, which springs and increases continually in the course of the transactions of business, and by an unseen and silent, but certain, process, tends to allay the evil passions of mankind, and to bind in harmony and friendship all the nations of the world. And the purpose of such an exhibition as this is to bear its part in that great and noble work; and that part, we believe, has been borne.

Afterwards referring to the belief that the Exhibition of 1862, compared with that of 1851, showed that in many cases ground had been gained upon us by rivals abroad, the Premier said,—Now, ladies and gentlemen, do not think me to be wholly slack and deficient in patriotism if I say I am not sorry for it. But I confess that is the case with me. My belief about the Englishman, the Briton—if I had a word that would conveniently include our Irish friends and subjects I would use it—my belief is, that in this particular the inhabitants of this island have in them the materials of everything that is great in every walk and province of human excellence, but they require a stimulus; they have not, perhaps, as much abstract love of excellence as you may find occasionally in the natives of other countries. Production in this country requires to be stimulated by competition abroad. You must, I think, throw the Englishman on his metal in order that you may come to know what he can do. I will not enter upon any elaborate proof of this apparently broad and sweeping proposition; but those who recollect what was the condition of some of our manufactures at the time when they were petted and coddled by legislative favour compared with what it is now when they have been brought out for years from the hot-house into the open air, and exposed to all the winds and blasts of heaven, will be able perhaps to judge why it is desirable that to you at least as much as any other country this powerful stimulus of competition should be applied. Nor is it only in a sordid and vulgar view that this competition should be regarded. It is the love of beauty perhaps more than of any other kind of excellence that we have to learn from our rivals in other countries; and that love of beauty applied to art cannot but be regarded as an ennobling and elevating power in its operation upon mankind.

On another occasion care must be taken to *start* better. We are afraid it cannot be denied that exhibitors have not derived that advantage from public review of their works and merits that under better arrangements might have been had.

THE "OPERA COMIQUE," WITH ENTRANCE FROM THE STRAND.

We cannot describe the new theatre as in the Strand, because, in truth, it is in Wych-street, and if we give that street or Holywell-street, which it also fronts, as its address, the lessees, Messrs. Leslie, Steele, & Norton, may take objection on the ground that the chief entrance is in the Strand. How this occurs by means of a subterranean passage-way under the houses in the last-named thoroughfare and under the roadway of Holywell-street, now called Booksellers'-row, we have already told our readers, with some other matters about the new theatre that scarcely need repeating. The building occupies a portion of the site originally intended for the Strand Hotel, and fills the vacant space which remained when the Globe Theatre was erected on the area of the quadrangle of old Lyon's Inn. The principal doorway, nearly opposite the Strand Theatre affords an approach to the stalls and boxes by means of a passage, which, furnished with mirrors, will serve the purpose of a conversation-lobby and "crush-room." There are other entrances from Wych-street and Holywell-street, two of which are of considerable width, and would soon empty the house if occasion should arise. The interior of the theatre presents an

elegant appearance. The whole of the space ordinarily assigned to the pit is devoted to rows of stalls, and above these, at an elevation of not more than 4 ft., are the balcony stalls. The tier above is the dress circle, and the upper boxes and amphitheatre rise beyond. On each tier are four private boxes, varying in size. The decorations are described officially as of the Genoese-Italian school. Over the proscenium is a large painting illustrating the story of Sappho; four segmental panels represent allegorical pictures of Morning, Noon, Evening, and Night; and two female figures, in somewhat uncomfortable position, modelled by Mr. Woodington, support the entablature, which is flanked by clustered columns. The ceiling is slightly domed, and in the centre is a "sun-burner," which brilliantly illuminates the house. Around the upper circle are lunettes filled with paintings emblematic of music, art, and the various sciences. The prevailing colours below are white and gold, relieved with some light tints, and enriched by blue draperies. Accommodation is said to be provided for 1,400 visitors, but this seems to us rather an over-calculation. This will be understood better when the proper seats in the stalls and elsewhere, at present not quite finished, are in their places. Careful design is apparent in many parts of the ornamentation, and the form of the house is calculated to enable the audience to see and hear. A little appearance of weakness is given by the circumstance that the uppermost range of columns carrying the ceiling are not over those below, but stand more forward. It is only in appearance, however: the whole framework of the construction is of iron, and doubtless quite equal to all that is required of it.

The theatre has been constructed from the designs and under the superintendence of Mr. F. H. Fowler, architect, by Mr. M. Reid, builder, Hammersmith. The decorations generally are by Mr. E. W. Bradwell. The work in relief, such as that of the proscenium, ceiling, and box fronts, is of *carton pierre* and *papier mâché*, by Messrs. White & Co. The figure paintings are by Mr. Ballard; and the furniture and upholstery by Messrs. Villars.

The house was opened on Saturday evening last, with Mdlle. Déjazet and artists of her theatre in Paris, the programme being "Un Soir qu'il neigeait;" "Les Près St. Gervais," a two-act comedietta, by M. Victorien Sardou; and, lastly, "Les Forfaits de Pipermans." Dependence is evidently placed on Madlle. Déjazet herself; and certainly when it is remembered that this lady was acting in 1815, her performance is remarkable. The critics of the daily press have, however, displayed an amiable weakness in terming it charming, and praising it in the manner they have done. Wonderfully clever, indeed, it is, but to some minds not agreeable, and, unless we are deceived, the laudations have simply prepared a disappointment for the public, who will look for a joyous schoolboy in the *Prince de Conte*, and find a little old gentleman. We shall be glad if it prove otherwise, but we have a strong conviction that the programme and the company must both be strengthened to attain success.

THE WATER SUPPLY AND DRAINAGE OF CIRENCESTER.

The town of Cirencester has been suffering for the last six months from a severe epidemic of scarlet and typhoid fever. We see, by a report of the sanitary committee, published in the *Wilts and Gloucestershire Standard*, that attention has been directed to the dreadful state of the wells in the town, and that "in every case in which typhoid fever had appeared, the water used by the afflicted families was found to be more or less impure." We see also, by an article in the same paper, that the degree of impurity varies from 38 grains of solid residue to the gallon "down to the dreadful well in Dyer-street, with its 102 grains to the gallon, and its yellowish brown fluid, full of various animal and vegetable organisms, and positively putrid." What can the good people of Cirencester be thinking of, to be content to drink this filthy stuff when they are surrounded on all sides by abundant springs of excellent water?—or have the principles of sanitary science not got down to Cirencester yet?—for we see by the report that some of the speakers seemed to think that impure water has no connexion with disease, even in the face of their own sanitary committee's report. A correspondent, who knows the town well, writes:—

> The town has been suffering all the spring and summer from scarlet and typhoid fever. The Professor of Chemistry at the Agricultural College has analysed the water from wells in all parts of the town, and has published a series of letters, showing a most alarming degree of impurity. But as town commissioners *will not see* that there is any connexion between bad water and illness, some of the speakers advocate drainage rather than water supply.
>
> But even supposing that a better system of drainage were adopted, that would only prevent *further* contamination of the wells; it would not remove the impurity of the soil, which is saturated with organic matter. The very site of the town is sodden, and it is useless to sink new wells. We ought to get our water from some of the many excellent springs on all sides of us. It seems absurd, then, that we, who have such abundance of excellent water, should be drinking diluted sewage ourselves, whilst the little that we should require would produce so perceptible an effect upon springs that are yielding millions of gallons daily.

If the inhabitants of Cirencester (pleasant old town that it is) do not take up this question of water supply at once, and resolutely follow it up with better drainage, they can scarcely hope to escape serious results. They have had more than one warning.

ARCHITECTURAL ASSOCIATION.

The opening *Conversazione* of the Association was held at the House in Conduit-street, on Friday, the 28th ult., under the presidency of Mr. T. H. Watson. The reports of the various art classes were read, and the prizes delivered. Afterwards the president, Professor Hayter Lewis, and others, addressed the company. Messrs. Arrowsmith, Gillow, Streeter, and Salviati exhibited some choice displays of goods, and the Museum of Building Appliances was, as usual, open to the visitors.

STATUE OF THE DEAN OF RIPON.

The admirers of Dr. M'Neile, in Liverpool, when he was made Dean of Ripon, subscribed a sum of money, and commissioned Mr. G. G. Adams, the Sculptor, to produce a statue of the reverend Doctor for their town. The statue being finished, it was offered last week to the town council, to be placed in St. George's Hall, and led to a rather unpleasant discussion. Moreover, it seemed the proposal had been made without proper notice, and it was withdrawn for a time.

One of the speakers urged that the statue should be critically inspected as a work of art before it was accepted. We are glad to be able to offer him our assurance that from that point of view no objection whatever is likely to arise. Mr. Adams, as it seems to us, has been particularly successful.

The figure is of heroic size, in Carrara marble, of great pureness. Attired in Doctor's robes, holding a book in one hand, and demonstrating with the other, the figure is dignified, while it suggests the known energy of the individual represented. It is lifelike, and stands well: the bands and robes are exceptionally well wrought, and we may fairly congratulate Mr. Adams on having achieved a fine work.

CAN A JOINER BE A GENTLEMAN?

"'A Journeyman Joiner' who writes under this title must be hard to please. He complains that, engaged to obey directions for hours, he has been expected to spend, say a minute, with his hand touching his hat instead of a chisel or a saw, and that some one wished to spare him the muscular exertion required for knocking twice instead of once at a door."

Some such badinage might fairly be addressed by a friend to the impetuous "J. J."; and, when the sense of humour temporarily extinguished by a not unmanly indignation had reasserted its sway, would probably restore the perception of the relations of things—the true function of humour.

It might, however, seem ungenerous in a stranger to suppose that personal pique has dictated what is, in fact, a condemnation of our social system, and of some points of our national character. We shall probably be none of us eager to apologise for many of the unamiable customs and qualities of which, thanks to an introspection now almost become a national defect, we are for the most part painfully conscious.

The sharp lines dividing our people, allotting them, in the oddest manner, into distinct classes; the reserve and want of social tact, fostered by habits of life, sometimes even by our individual liberty; the infrequency of binding ties based on the better feelings, in which our social strife, called competition, seems necessarily to result: these, and countless other social and personal defects, strike most of us with amusement or—with regret. Carlyle, Mill, and other social philosophers; Thackeray, and a host of social satirists; preachers and others not a few, have not failed to do justice to their genius and insight, and to write and speak of these matters with a calm rebuke, or bitter indignation.

Should then any one,—a man like "J. J." let us say,—deem himself, and such as he, specially victims of the system,—caught in the iron fetters of a fate that takes the life from their aspirations, and makes them doubt as to that

> "All-protecting freedom, which alone
> Sustains the name and dignity of man?"

it would require a rare skill to answer such a question, or even to turn aside the point of it, without using the conventional commonplaces that are the defensive weapons of a comfortable middle-class optimism. Under the influence of a vigorous anger ("one of the passions; he that hath it not hath a maimed soul"), the language of consolation, acquiescence in the inevitable, optimism of any sort, even the argument of the value of self-denial and endurance,—all are dashed aside as almost meaningless.

The only answer of any value seems to lie in the word "Provisional."

We have repeated this word and its sense so often that it ceases at times to appear to us, (what it really is), the most valuable key idea with reference to human affairs. "A pilgrimage," "no continuing city," "states and powers to dissolve," "all the creation of man's wit and will,"—these and other phrases,—till the words, once instinct with life and meaning, are often droning sounds that lull our faculties to sleep. . . . . Feudalism, dead as a system, but lingering as a fact; a new commercial and manufacturing energy; an old society and the throes of new life; wealth, ease, and luxury; hard toil, penury, abject poverty; incapacity, corruption, the want of rich, fine natural qualities in many captains of our industries; a future with which statesmen do not attempt to grapple because the conditions of their problem would change under their eyes: timid back-glances at the past, rapid change and feverish exertion in the present, the future shrouded in heaviest mists. . . . All provisional!

Then, *provisionally*—courtesy? Why not? Why not a change in national manners (courteous customs)? The gay, gallant humour that makes the courtesy of equals—with the deference and reverence accorded to women: should they be suspended till they are demanded? "J. J.'s" awkward word "gentleman" (in its best sense) points to nothing more than such a bearing in a man as the fruit of a courteous soul.

Does not the slowness of some Englishmen lead them to shut their eyes to the fact that ready deference is the essence of courtesy?—that equality simply claimed is not the equality that is won by manliness and grace? Probably many might learn the lesson, and many would willingly show that they have learnt it—if they could; but "J. J." would readily own that he knows people who would have *to make a beginning*.

One cannot help an expression of regret at the "no intelligent man likes to be a drudge," the "distaste for drudgery," that show themselves once or twice in "J. J.'s" letter.

"Who sweeps a room, as for Thy laws, makes it and the action clean."—(*George Herbert.*)

Or Ferdinand of his labours by Prospero's orders,—

> "This my mean task
> Would be as heavy to me as odious, but
> . . . . . quickens what's dead,
> And makes my labours pleasures."

(Surely no craftsman need be at a loss to fill in the blank in a worthy way.)

Few can fairly claim to be critics or censors of others, for desiring as much ease and luxury as they can get. Lord Derby (the present Lord) put this neatly when he said that "we are all too much tarred with the same brush;" we must be either silent or priggish. Literature and history step in, however, with higher standards than local and temporary feelings and customs. The simplicity of life, the union of lofty character with Spartan habits,—perhaps a touch of Stoic grandeur, or even of Mediæval taste for hardships, may once again astonish and benefit our

world, emasculated by comfort, and blindly," in securing mere existence, losing sight of the aims of life."

If "J. J." states, as he may well do, that this is hardly an answer to his, "Can a Joiner be a Gentleman?" it may be replied that, as such a question is evidently quite unconventional, one must recur temporarily to the simpler ideas underlying our habits and customs, which those habits and customs at once clothe and shroud.

If, in the future;—if, say "J. J.'s" great-grandchildren are to laugh at such a question, implying to them the existence of a society graduated as might be recognised to be fitting in disturbed dreams, instead of sober daylight;—if we are to perform what some deem our great national programme,—to build up a NATION,—high-spirited and gentle and patient, quick-witted, law-respecting,—with social virtues and domestic affections, all developed freely as the best growths of nature;—ruled over by men who have in fuller measure the qualities wished for by the people for themselves, and ruling not over citizens only, but over their minds and hearts;—if . . . it must be through the manhood, the force of character, the intellect,—in a word, the *virtue* of our people.

It is because some of the best of the working classes in England have such a programme in their minds, that so special an interest is now turned on them as a section of the builders-up of our national future. S. F. C.

WHAT IS A GENTLEMAN?

It needs not noble birth, as understood,
Nor ancient lordly life and lineage;
True gentleness depends not on the blood,
Nor is politeness a mere heritage.
Good breeding, gentle manners, honest aims,
Alike in peasant, peer, and artizan,
Need no side-hinging to "illustrious" names,—
Alone these constitute the gentleman.

C. H. C.

SCHOOLS OF ART AND OF SCIENCE.

Central School of Art for Derby.—A circular respecting the Central School of Science, to be held at the Old Grammar School, St. Peter's-churchyard, in connexion with the Science and Art Department of the Committee of Council on Education, at South Kensington, states that the arrangements for the session of 1870-71 include four evening science classes for the study of Theoretical Mechanics, Inorganic Chemistry, Acoustics, Light and Heat, Magnetism and Electricity, under the superintendence of the head-master, Dr. Davis, principal of the Whitworth School of Science, Cheltenham. The terms are one guinea per session, admitting to all or any of the classes, but artisan and industrial students who compete at the Government examination in May will be admitted on payment of 2s. 6d. per term, and there are three terms in the session. A long list of names of prominent and influential citizens is appended to the circular, as forming the committee; the mayor is the patron, and the classes are pressed upon public attention with the weight of many of the most intelligent in Derby.

The Stroud School of Art.—The annual exhibition of the works of the pupils of this school, with some works from the Gloucester school, have taken place in the Corn-hall. The works were of considerable merit, and showed progressive improvement, the number of oil paintings being in much larger proportion than at previous exhibitions. A public meeting was held in the Corn-hall, when the prizes gained by the students, and also by the students in the science classes established in connexion with the Stroud Institute, were distributed. Mr. Dickinson, M.P., presided. There was a crowded attendance. Addresses were delivered, and many prizes, both local and those given by Government, were distributed.

The Gloucester School of Science.—At a preliminary meeting of students and others intending to join the Science Classes this season, Mr. Jeffery explained the objects of the meeting, which were simply to give some account of last year's work, to distribute the result papers to the successful students, and to enrol members for the new classes. It appears that these classes were originally established at the Free Library three years ago as an essential feature in Mr. Jeffery's management of that institution; they were very fairly successful then, and have continued so since. During the last session, 43 students enrolled themselves as members of the various classes. Of these, 25 continued their studies all through the season, and 21 were examined; 82 papers were worked by them, out of which 9 first-class and 40 second-class certificates were obtained. Mr. Jeffery alluded to the important changes likely to take place in the future elementary education in this country, showing, by reference to the papers recently read at the Social Science Congress, and to the meetings recently held in London under the presidency of the Lord Mayor, the strong and growing conviction that the people of this country cannot be sufficiently educated while "the Government instruction and aid are limited to the three Rs of the revised code."

Establishment of Science Classes in Reading.—A meeting has been held in the local Council Chamber for the purpose of establishing science classes in connexion with the Museum of Science and Art at South Kensington, and hearing an address on the subject by Mr. J. C. Buckmaster, of London. A large number of people assembled, and an adjournment to the Town Hall was rendered necessary. The Mayor (Mr. P. Spokes) presided, and a committee was appointed to carry out the objects of the meeting.

Chester School of Science and Art.—An exhibition of drawings connected with this school of art has been open some weeks in the Old Palace. At the close of the exhibition, a *conversazione* was held in the rooms. It was numerously attended by an appreciative audience. The distribution of prizes to the successful students at the examinations in March and May, 1870, was made by the Dean of Chester.

Burslem and Tunstall School of Art.—The first annual meeting of this institution has been held in the Town-hall, Burslem. Mr. James Bateman, M.A., F.H.S., presided, and was supported on the platform by the chief bailiff of Burslem (Mr. F. Tennant), and other gentlemen. There was a very large attendance, notwithstanding unfavourable weather. Mr. Woodall read the report of the committee, of which we give an abstract:—

"The interest with which the erection of the Wedgwood Institute was locally regarded, gave a special impetus to the opening of the schools last October, in the rooms which had been so carefully designed for their accommodation. But while some advantage was derived from this circumstance, the managers had at the same time the disadvantage of having to deal with a collection of students some of whom were merely attracted by the novelty, and soon withdrew, while many who remained had had no previous training. Due weight being given to these considerations, the committee regard their first year's results as eminently satisfactory, since they compare favourably with some of the oldest and most successful schools elsewhere. The committee have no hesitation in attributing these successes mainly to the zealous and intelligent exertions of their head-master and his three assistants, and they commend Mr. Theaker's report to careful consideration. The elementary art classes have been throughout well attended, and now, in the second session of the school, there are very few vacant places. The advanced art school is becoming increasingly interesting and important. The Committee have, however, to confess to a disappointment in that the female evening class is not well attended, although much has been done for its comfort and advancement. In like manner, but in less degree, there is among ladies, whose means and leisure place the morning class within their reach, a surprising indifference to such an advantage. The Committee are aware that the other district schools have had a similar experience, but they hope to see an increased appreciation of the value of such a branch of education amongst those whose mission it is to elevate and refine our every-day life, and whose innate powers are enhanced by the charms of an accurate judgment and a cultivated taste. In the science classes the Committee are satisfied that a good beginning has been made. The necessity for close and persistent application is much greater in this department than in the art section. In those classes under Mr. Theaker's supervision there is obvious progress, and satisfactory results are confidently anticipated from his careful system of teaching."

In conclusion, the committee earnestly ask for a manifestation of greater personal interest and support from those who occupy positions of influence in the district. Mr. Theaker then read his report, in which, after referring to the difficulties with which he had had to contend in organising the school, he stated that,—

"In April last 873 elementary and eighteen advanced works were sent to London in competition for prizes and for examination, in accordance with the minutes of the Department of Science and Art; nine prizes were awarded, a student of the ladies' morning class obtaining one of them; eighteen works were selected for national competition, and eighteen students were honourably mentioned. In geometry, freehand, modelling, and perspective, fifty-three passes were obtained, including twelve prizes and one full second-grade certificate. As free students for one year, four were recommended to the Department, those being all that were eligible, and they were all appointed free students. With regard to the science classes, in those subjects which come under this department,—namely, building construction, machine construction and drawing, solid and plane geometry, &c.,—although there passed at the examination one student in solid and plane geometry, two in plane geometry only, two in building construction, and six in machine drawing, out of those who presented themselves, this was the least satisfactory result in the school. Reasons were given for this conclusion; and then Mr. Theaker reported that, although the designs sent up for competition for the prizes offered by the Plasterers' Company had not been successful, the principal promoter of those prizes thought one of the designs so good and suitable for wall decoration that he had purchased it from the student. He concluded by stating that, on the whole, he had every reason to be abundantly satisfied with the assiduity of the students, the quality of their works, and the results generally of the first year's operations."

The Chairman then distributed the prizes to the successful competitors.

The York School of Art.—The annual meeting of this school has been held in the institution, Minster-yard. Mr. W. C. Worsley, of Hovingham, occupied the chair. The committee's report stated that the average number of pupils in attendance on the several classes during the year has been 94, showing a slight increase on that stated in the last report, when it was 83. The results of the Government examinations are as follow:—In the second grade, 27 passed in free-hand drawing, of whom 9 were marked excellent; geometry, 6, of whom 4 were marked excellent; perspective, 3, of whom 2 were marked excellent; 13 received prizes, and 36 passed the ordinary examination. On comparing these results with those of the preceding year, it will be found that in 1868-69, 29 passed and 5 received prizes; giving, therefore, 8 less as receiving prizes, and 7 less as having passed the examination. The examiners' report in reference to the works sent up to South Kensington says that "the machine drawing from actual measurement was the most thorough in workmanship." A vacancy in the mastership of this school has been filled up by Mr. J. S. Dorring, from the Yarmouth School. The committee urgently appeal to the local public for subscriptions. The chairman, in his address, spoke of the ornamentation of the walls of their houses. A person built a house, he remarked, and found that a bare wall was an ugly thing. There was a want felt, and therefore something was required to ornament the wall. Hence they had a demand for pictures, paper, cornices, and all those things which made their rooms beautiful. This consequently produced a demand for art,—a demand which, in fact, constituted a field of occupation for students in a school of that description. He thought there had been a very great advance in art of that kind within even the memory of young men, but certainly within the present century. If they went back 100 or 150 years, they would find that there then existed a very dull and cold appreciation of art. Take the example of such a street as Harley-street, in London, where there was a long, straight, and dull monotonous range of buildings, with square windows, dull red bricks, and no attempt made at what could be called beautiful. If, however, they went towards the neighbourhood of that magnificent institution in South Kensington, which was so dear to all the lovers of art, they would find that there was an attempt there to erect beautiful buildings. They were cheery, airy buildings, upon which there had been some attempt made at ornamentation. They were not in every case of the highest class, but there they had evidence of a demand for something beautiful in all they did.

TENDERS FOR THE BRIGHTON SEWERS.

AT a special meeting of the Sewers Board, on Monday last, after some little mystification, the following list was given of those contractors who had sent tenders:—

1. Messrs. Crabb & Vaughan, Kingsland.
2. Mr. Matthew Jenning, 3, Adelaide-place, London Bridge.
3. Mr. William Webster, 8, St. Martin's-place.
4. Messrs. Hill, Keddell, & Waldram, 38, Kingsland-road.
5. Messrs. Thurst & Co., Chelsea.
6. Mr. Henry Harrison, Great George-street, Westminster.
7. Messrs. Dickenson & Oliver, Camberwell New road.
8. Messrs. Fernandez & Kershaw, Tunbridge Wells.
9. Mr. Thomas Penson, Kennington Cross.
10. Mr. Wigmore, Fulham.
11. Mr. Fredk. Furniss, Havant.
12. Mr. John T. Chappell, Little George-street, Westminster.
13. Messrs. Hiscox & Williams, Lavender-hill, New Wandsworth.
14. Messrs. John Aird & Sons, Lambeth.
15. Messrs. Cheesman & Co., Brighton.
16. Messrs. Neave & Fry, Mile-end, Portsmouth.
17. Mr. Joseph Phillips, Westminster Chambers.
18. Messrs. W. & J. Pickering, New Bridge-street, Blackfriars.
19. Mr. Geo. Wythes, Buckley Park, Bromley.

It will be noticed that, contrary to customary practice, the amount of the respective tenders is not appended; and, in reply to an inquiry, the Clerk stated that it was not intended that the figures should be made public!

Mr. Cordy Burrows, after explaining that the Board had received nineteen tenders, and that they had had the assistance of Mr. Hawkshaw in

the consideration of them, moved a resolution recommending that the offer of Mr. Matthew Jenning to carry out the works for 66,962*l.*, which was, he said, the lowest tender, should be accepted. He said the contractor was well known to Mr. Bazalgette, the engineer, and others, and expressed his gratification, which he felt would be shared in by the town, that the accepted tender was so much less than had been anticipated.

This having been seconded and carried, the sureties of the contractor for the due performance of the work,—Messrs. James Stiff, High-street, Lambeth; George Smeed, Sittingbourne; and George Loe, 3, Adelaide-place, London,—were approved, and the solicitor was ordered to prepare the necessary agreement and bond.

ERRONEOUS ESTIMATING.

The following list has been sent us of tenders delivered for alterations and additions to Nos. 3 and 5, Buckingham Palace-road, for Mr. John Gooch. Mr. J. Dale, architect. Quantities supplied:—

Barber & Groome	£2,188	0	0!
Bellham	1,949	0	0
Richards	1,899	0	0
Shillito	1,800	10	0
J. & C. Whitaker	1,708	0	0
Snowden	1,695	0	0
Perry	1,670	0	0
Cook	1,619	0	0
Parsons & Co.	1,579	0	0
Blackmore & Morley	1,537	0	0
Fanthorpe	1,529	0	0
Baxter	1,449	0	0
Blease	1,443	0	0
Capps & Ritso	1,420	0	0
Lacy	1,400	0	0
G. Cox	1,369	0	0
Luscombe	1,325	0	0
J. Cox	1,245	0	0
Froud	807	10	0
Wagner	800	0	0!

The lowest was accepted, and the work is about to be done. It will scarcely be believed that all tendered on the same bill of quantities, but so it was, and this discreditable difference (one builder saying 2,188*l.*, the other 800*l.*), therefore, arises merely through the prices.

Here is another list, not quite so bad, but still preposterous:—

Tenders for the erection of an Odd Fellows' Hall at Shoreham, for the trustees. Mr. Geo. Tupper, architect. Quantities supplied:—

Blaker	£1,173	0	0!
Watson	1,045	0	0
Winnett & Brooker	1,021	0	0
Holloway & Son	1,020	0	0
Blackmore	999	0	0
Hall	970	0	0
Smith	960	0	0
Lockyer	900	0	0
Dean	895	0	0
Architect's estimate	890	0	0
Miles	885	0	0
Curd	883	0	0
Stenning	875	0	0
Burstow, S.	864	0	0
Beach & Parish	825	0	0
Chappell	815	0	0
Hammond	777	0	0
Burstow, T.	683	0	0!

THE ELECTION OF SCHOOL BOARDS.

The electoral placards, some of them ungrammatical, and the addresses at loose meetings, at vestry halls, and the nominations of candidates who do not pretend to have paid the special attention requisite to the means needed for the efficient education and training of neglected children, have led the Education Committee of the Association for the Promotion of Social Science, to entertain the like apprehensions to those expressed by the Council of the Society of Arts, that if this course be continued and prevail, the new School Board will be an expensive failure.

It should be known on such evidence as that of the Ordinary of Newgate, and experienced school and prison inspectors, that crime has largely recruited its ranks from union workhouse schools, and rate-aided and many State-aided schools, and that this has been unwittingly done by the election of persons as local administrators who have not examined, and do not know, what sort of elementary teaching is indifferent or bad, and what is efficient and good.

It is therefore suggested that the ratepayers should inquire, or get inquiries to be made, of the candidates who have been named, and of those who may yet be named:—(1). Whether they have given any practical attention to the subject, and how long, and what have been their opportunities of observation of the results of different methods of elementary instruction, and of industrial training, and of their efficiency in rendering children fit for service, and their comparative success or failure, and on their expense in time and in money? (2). Whether they are aware of the experience that physical training by bodily exercises must be combined with mental training for a large proportion of the children of the depressed classes, to impart to them the requisite aptitudes for efficient manual labour and industrial service? (3). What is their knowledge of the defects of existing methods, and their grounds of confidence in ascertained means for amending them? (4). Whether their observations have made them aware of the differences in the classes of children to whom it will be necessary to apply different methods, and are prepared to bring them under consideration?

To ascertain the sense of the electors completely, and comparatively inexpensively, the Social Science Committee recommend, where practicable, the adoption of a preliminary test-ballot by papers, distributed from house to house, and collected either by commissionaires, or by post in the method in use by pension societies in the ballots, for candidates upon descriptive lists. The lists issued might present to the electors, besides the names submitted by a Committee of Selection, the names of any other candidates who chose to offer themselves, and might be willing to abide by that method of ascertaining the wish of all the electors.

STATISTICS OF METROPOLITAN GAS SUPPLY.

The accounts for 1869 of the thirteen gas companies by which the metropolis is lighted, have been published, in compliance with the several Gas Acts, and "presented pursuant to Act of Parliament." The authorised capital of the thirteen companies is about ten millions and a half sterling. The largest amounts, as regards authorised capital, are those of the Imperial Gaslight and Coke Company, 2,860,000*l.*, of which 1,153,653*l.* remain to be issued, and called up; and the Gaslight and Coke Company, 2,012,500*l.*, of which 708,464*l.* remain to be called up and paid. The quantity of gas sold to consumers during this year is very nearly, if not quite, 9,000 millions cubic feet, and the aggregate amount received by the companies for public lighting and for lighting by contract, 222,000*l.* The companies have taken during the year about 1,250,000 tons of coal. The price at which four-fifths of the gas are supplied is 4*s.*; the remainder being cannel gas, at 5*s.* 6*d.* per thousand cubic feet, and the supplies by the South Metropolitan Company, at 3*s.* 2*d.* and 3*s.* 4*d.*, and by the Independent Gas Company at 3*s.* 4*d.* The receipts appear to have been ample to enable the companies to pay the maximum dividend of 10 per cent. upon their ordinary stock.

THE MARGATE JETTY JOB.

Sir,—It is difficult to say whether the directors have most astonished the competitors by the alacrity with which they have made their award, or by the extraordinary decision at which they have arrived.

The design selected for the first premium is that signed "Octagon," and is the production of Mr. G. G. Page, of Westminster.

The second premiated design (40*l.*), "Espérance," is that of Mr. Soul, *the clerk to the directors of the company*.

The third premium (25*l.*) was awarded to the design marked "Dolphin," the production of Mr. W. Lane Sear, of Margate.

Four other designs were sent in, and the whole have been submitted to public view at the Droit Office, at Margate, during the last few days.

Conspicuous among the whole for its meagreness, and absence of any claim for admiration on the score of invention or construction, stands the design to which the second premium has been awarded.

Two questions arise:—1st. How comes the *clerk of the company* into the competition at all? 2nd. What are the merits of his designs, *supposing* him to be fairly a competitor?

As to the first question. Not quite two years ago the directors of the Margate Pier Company advertised for *a clerk*, at a salary of 120*l.* per annum, and Mr. Soul was the gentleman selected to fill the vacant office. The circular inviting us to this competition is before me, and is signed "W. McNab Soul, chief clerk."

I learn that there was a leaning in the minds of several of the directors, before the designs were sent in, towards an octagonal form of head to the extension plans (indeed, it was a foregone conclusion with them); and that Mr. Soul and some of the directors met Mr. Page in consultation some few weeks ago upon a draught plan which he then submitted, and advised certain alterations therein, which Mr. Page accordingly made, and with the result of gaining the first premium. Thus Mr. Soul obtained an advantage denied to the other competitors, besides that great advantage which would naturally accrue to him in his position of clerk to the directors, present at all their meetings, and entering into their minds. Moreover, viewing Mr. Soul as the chief clerk of the company, probably more than one of us opened our minds more freely to him than if we had known we were speaking to a competitor.

I think, sir, you and others will agree with me that Mr. Soul was not fairly in the competition.

Now, as to the merits of his design. A plain octagonal head, having sides of 80·0 each, and flanks of 107·6 each, is shown on four small unmounted drawings; viz., a small block plan, one elevation, and two deck plans. No section, no perspective, no dimensions of girders, piles, walings, ties, bolts, bracings, or timbers are given, and not a single sheet, nor even a sketch of details of any kind. A short and very flimsy report accompanies the plans, and all are signed boldly "*Espérance*" in his own handwriting; but it would be rudeness, of course, to suppose that this latter accident was noticed by the directors. All the other designs are by men who can draw, and show sections, construction, and detail. I might point out, dared I trespass, some minor matters that provoke comment; but I dare say you will in all probability be addressed upon the subject by some other

Competitor.

[Seven sets of designs were sent in, including some by Messrs. Moreland, Cubitt, Whittaker, and others.]

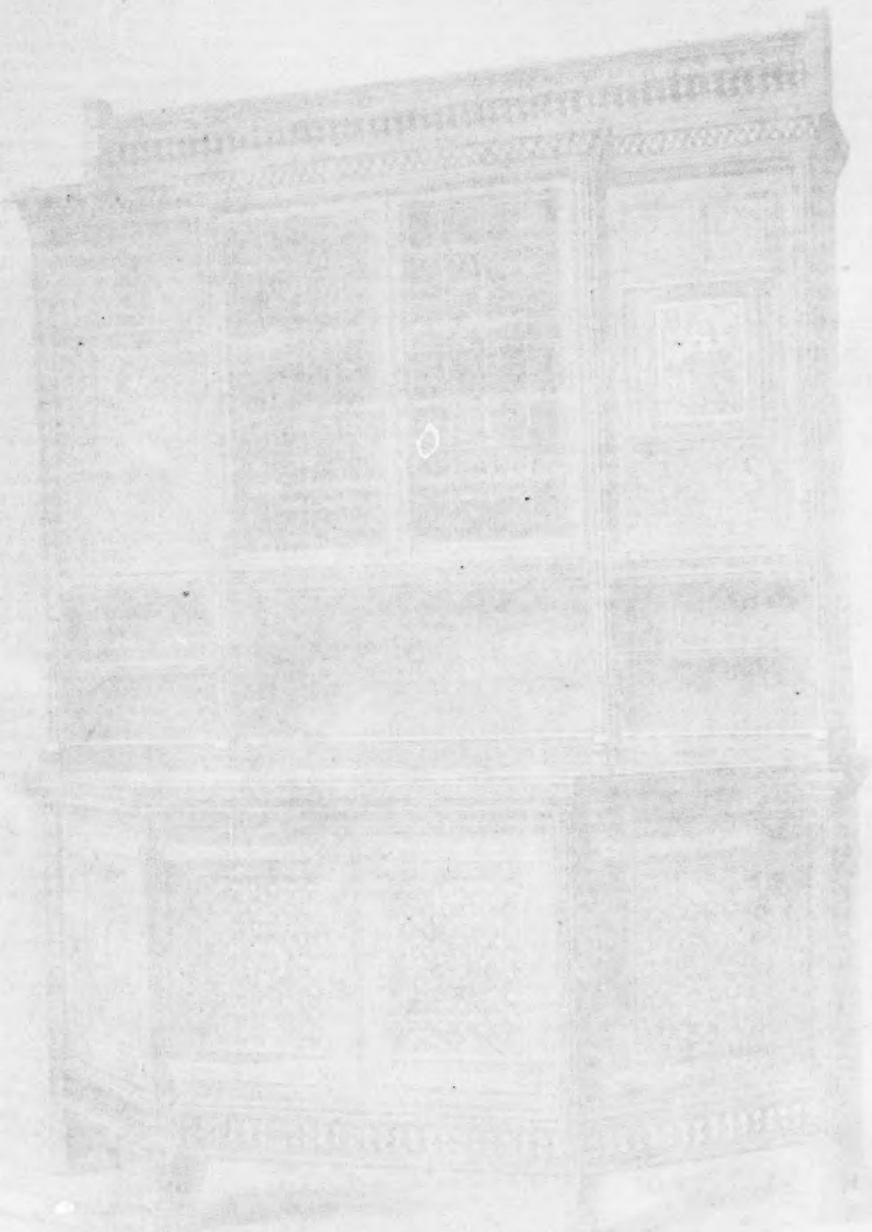
LOOK TO THE COIN DEPOSITS.

A singular theft, it is said, but more plural than singular, we fear, has just been brought to light at Plymouth. On July 28th last the foundation stone of the new guildhall, about to be erected in the town, was laid with great public and municipal *éclat*. Since that time to the present the work of erection has been going on at a part of the site some distance from the foundation stone, which, in consequence, has remained as it was laid, untouched and unbuilt upon. As one of the contractors for the building was surveying the work, he noticed that the foundation stone bore evidence of having been displaced from its socket. This aroused his suspicions as to the coins deposited, and, in order to satisfy himself, he told the men to raise the block. It took four men to do so, the stone being 2 tons in weight. It was then found that every coin had been carried off. As yet no clue has been obtained to the thieves, who must have numbered at least four or five men. Better deposit no coins than leave a distant posterity to suppose us a race of thieves. We have urged care in first stone-laying for years.

OFF STREETS AND OPEN SPACES.

Sir,—How neglected they are! Scavengers never apply their art there. Why, I am unable to fathom. Rates are paid by all parishioners for cleaning the *whole* parish. If private spots abound, let them be gated or walled up, not remain an open depository for pestilential offal, garbage, ancient fruit, fish-shop clearings, oyster-shells, flock, straw, defunct grimalkins, and house-repairers' rubbish. The effluvium from the greenish puddles is nauseous; though, thanks to the boys, the place is ozoned by an occasional bonfire. It is a "Tom Tiddler's ground" to them. If a building exists here it generally is of a very poor order, viz., a cordwainer's manse, a woodchopper's castle, a coal emporium, or a donkey's palace. I maintain that scavengers should ply their anti-fever craft in all open spaces in towns: "prevention is better than cure." Let us have their *carte de visite* rather than the undertaker's.

R. T.



A CABINET.

Designed by Mr. Talbert; executed by Mr. Forsyth.

A CABINET.

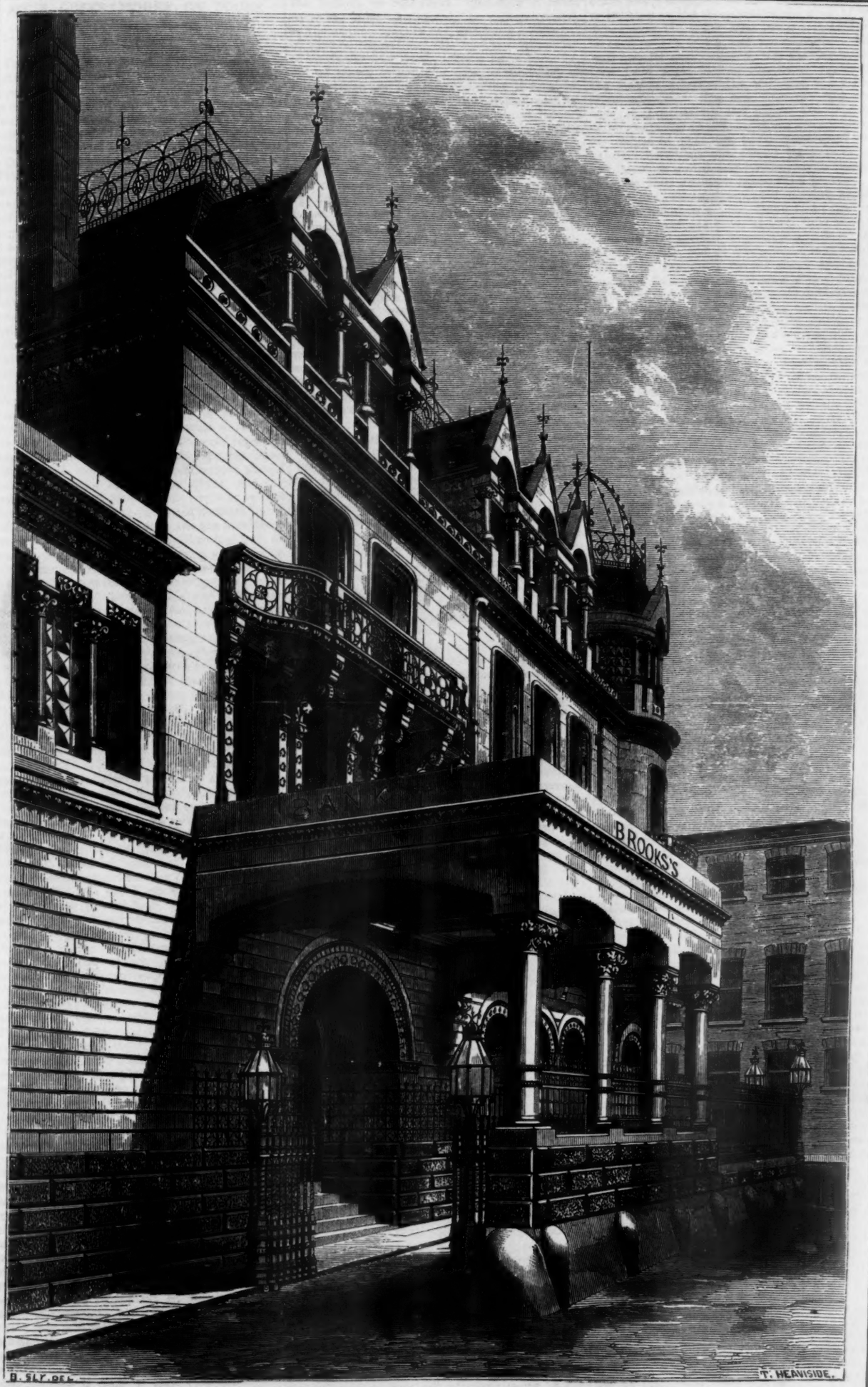
ALTHOUGH the furniture of our houses is of much importance to our comfort and convenience, the preparation of it, except in a few instances, is much neglected, or left to the freaks and fancies of the unskilled in design. A growing change has, however, been manifesting itself of late years. Our principal cabinetmakers feel it their interest to avail themselves of the architect's assistance to meet the improving taste, and desire for change, in their customers; and, though everything that may have come from the pencil of modern architects may not be all that could be desired, still much that is good has been done. The cabinet we have illustrated this week was executed, in ebonized mahogany, in the workshops of Mr. Forsyth, for Mr. E. Hull, of Manchester, Mr. Talbert being the designer. The enrichments consist of two painted panels, on gold grounds, containing portraits of Mr. Hull's two children, brass grills, fret-work on gold ground, ornamental brass hinges, and carving, incised and in relief, gilt. The general effect is very pleasing, and the execution excellent.

BROOKS'S BANK, MANCHESTER.

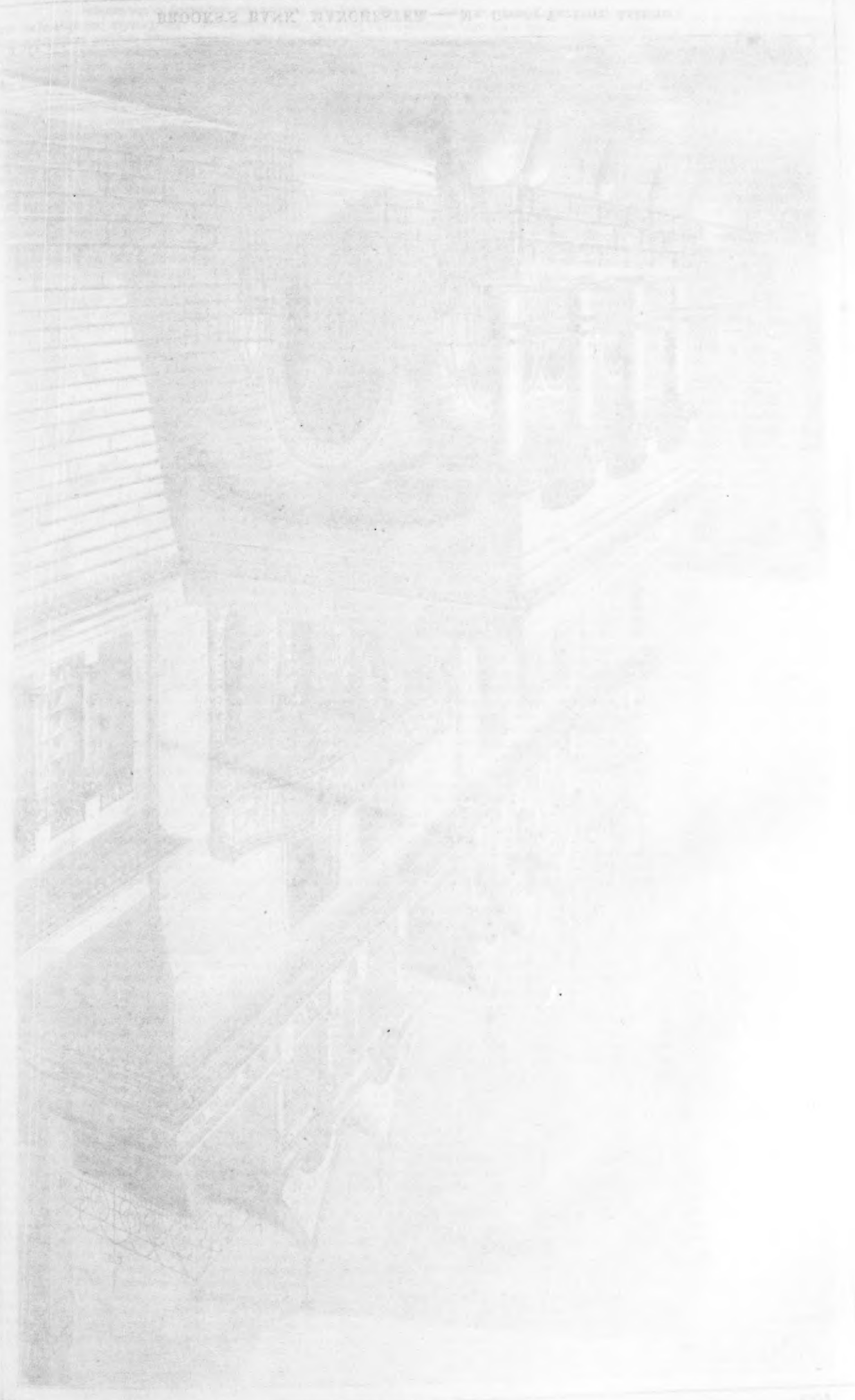
THESE premises were occupied by the Bank of England for more than thirty years, but during the last twenty they have been materially added to by the late Mr. Samuel Brooks, and by his son, Mr. William Cunliffe Brooks, M.P., of Lombard-street, London, and of the Old Bank, Blackburn. A portion of the new buildings lately erected is shown by our engraving. The porch is the back entrance to the bank, in Chancery-lane, the lower building being the bank wall, and the higher giving an idea of the style of a block of offices in connexion with it.

The works have been carried out from the designs, and under the superintendence of Mr. George Truefitt, architect: the bank work at a cost of about 12,000*l*., and the offices at a cost of 14,000*l*. Mr. Watson was the clerk of the works; the masonry was done by Messrs. Patteson, whose carvers, Messrs. Williams & Mooney, have executed their work from the architect's details with great effect and vigour. The ornamental brasswork was done by Messrs. Johnston, Brothers, of London. The ironwork by Messrs. Bellhouse, of Manchester.

The bank is lighted from above, and is fitted up with a Sienna marble dado throughout, gilt columns, elaborate brass screens, and standards; all, however, having a quiet though handsome appearance. Mr. Truefitt has shown, as usual, much originality in the design.



BROOKS'S BANK, MANCHESTER.—Mr. George Truefitt, Architect.



SOME OBSERVATIONS ON DOORS AND PARTITIONS.

By a Joiner.

THERE is nothing more disagreeable or unsightly in a well-furnished room than the appearance of an ill-formed, ill-fitting door, and its surrounding architraves, which are usually in keeping in style and workmanship with the door they are supposed to ornament. A few observations on the evils of bad workmanship in our buildings, and some hints for the future prevention of these evils, will not be thrown away. Much of what we may say is generally known to ordinarily good workmen, but experience has convinced us that the knowledge of how to do a thing well is forgotten, or ignored altogether, in the execution of a vast amount of the workmanship in our workshops and buildings. But to the point. The making and framing and finishing of a door and its trimmings is a very simple piece of joinery in these days, and yet how wretched is the execution of the greater part of our ordinary joinery work. Doors or sashes, skirtings or floorings, are seldom or never finished as specified. It would be a miracle to find thicker or better material put in by the contractor than what is specified. This, of course, is not expected; but what is not expected, on the other hand, is found,—thinner material, poorer material, useless material! Who is to blame? But let it pass, on another occasion we will cut the bearing string and exhibit the *rats'* terror at large. Doors, parlour or drawing-room ones, even in the most common class houses, should not be less than 1¼ in. thick (full), and the mouldings around their panels ought to exhibit the same appearance to the eye as if struck in the solid. Some people prefer to see the mouldings project above the face of the framing, but, no matter what massiveness or variety the adoption of this method may be made to show, it is not a system to be recommended. The raised panel-work in most of our old British oaken and other doors was seldom raised above the face of the framing. The mouldings round the edge of the framing were in the solid, as were the mouldings round the central squares of the raised panels. Ornamentation around these inner squares was seldom planted on; but if it did happen, it was regulated so that it should not rise above the face of the outer framing of stile and rail. Many of these old doors are to be seen yet in our country and city mansions, and in some of our old public institutions. There are not a few of them centenarian, and older, and many of those that we have examined of eighty and ninety summers are yet strong and serviceable, and are likely to last out the best of our hand-made and present machine-made doors. What was the secret of their good workmanship? It lay in the fact that the timber that composed them was well selected and well seasoned, and not what was lifted from the timber-pond the day previously. Their making also was not a job against time, a sort of hurry-skurry, slap-dash, break-neck "slop-work." Let not our readers smile. The doors in our old public and private dwellings were properly made. Their tenons were cut with exactness, "out of winding;" the shoulders on each side were perfectly square; and it was not left for the framing-cramp to make a close joint by extra pressure where ordinary pressure with exact workmanship would be sufficient. The panels of doors should fit their ploughed grooves ordinarily tight, for panels are more or less given to shrink if not well seasoned. Where the mouldings are planted on, and where the mouldings themselves are not of seasoned material, unsightly evidence of shrinkage will soon present themselves at the margin of the mouldings upon the panel. If the stile and rails of doors are not properly "tryed up" square, and out of winding, it is rarely possible to frame them out of winding, *i.e.*, make them perfectly level on the plane of their face, except by unworkmanlike expedients. Even though they may be forced square for a time by a system of wedging and of kerfing, yet they will, after they are hung, go back again into winding. Thus bad door-making produces a series of other evils that interferes ever afterwards with their appearance and usefulness. When a door is out of square on its face it will not hang plumb; one of its edges may, but the other will not. It will be found that if plumb upon the hanging side, it will be out of plumb upon the closing side, where it will not range perpendicularly with its rebate or stop. Often a door of this description will, when closed, touch the stop at the top, while it is half an inch or a quarter of an inch from it at the bottom, or *vice versâ*. The door in these cases has to be "humoured," or accommodated, as the workman would say, and hung a little out of plumb. Sometimes the workman will strive to knock the door-frame, with a large hammer, out of plumb to suit the door, to the injury of the partition and its plaster coating, if finished. If he fail to move the door-frame without resorting to violent expedients or vast labour, he coaxes matters to an agreement in the putting on of the lock. If the door does not exactly close, from the results of bad workmanship, the spring bolt of the lock and its staple or catch will be made, in its arrangement, to polish off the difficulty. Numerous are the unworthy expedients that have to be resorted to by workmen to make bad work assume the appearance of good work; and hours and hours of valuable time are often lost in striving to cure what a little timely precaution would have prevented. In some places what is called a "saddle" is used to raise up the door the necessary length, to allow its passage over the carpet. A saddle may be a piece of wood from three-eighths of an inch to half an inch in thickness, and of a breadth equal to a door-frame, sometimes inclusive of the projection of the architraves each side. A square equal to the thickness of the door is left in the middle, and then the outer breadth is chamfered down to about ¼ in. thick, which is rounded on the edge. This, being nailed to the floor, allows the door, when open, perfect freedom over the carpet. Instead, however, of nailing a saddle down upon the floor for this purpose, a better plan would be to have a length of flooring-board under the door three-eighths of an inch thicker than the common flooring-board. Let this piece extend from the outside of the architrave in length, and be in breadth equal to the thickness of the finished partition. It can be chamfered and laid at the same time with the flooring, and it will make a better job than the surface nailed on saddle. The saddle, however, can be dispensed with by hanging the door with hinges with rising joints. There are other expedients that may also be adopted, involving some trouble, by which either the door when opened may be made to rise sufficiently to free the thickest carpet, and when closed to be nearly air-tight at the bottom. Doors should not be hung where there are lath-and-plaster partitions until the plaster coating is pretty dry. The dampness will both affect the door and door-frame, and cause the wood to swell. This will more particularly be the case when the wood in the frame and door is green and unseasoned stuff. It will be often found that though sufficient freedom be left in the fitting and hanging of the door, yet the moisture arising from the wet plaster will cause the stuff to swell considerably, and the door will appear too large for its opening a day or two after first fitting. The door should not be re-fitted again immediately; if it is, it will after a short time be found to have too much freedom, and will look unsightly. It would be always better not to hang a door until the partitions were tolerably dry. Many are the evils in our new buildings resulting from a neglect of these precautions, but they are evils attending on hurried work, where good intentions may exist but circumstances prevent their being carried out. Much time is lost by the workman in fitting and hanging doors, and the system persisted in at present must be condemned. If a door-frame is properly put up, square, straight along the stiles, and out of winding, the workman can square and shoot his door to the required size, and put on the hinges upon the door, without once offering it up, until he is ready to drive in the screws. He can do all at the bench in the building. Let him simply provide himself with a square with a blade sufficiently long to square his door, and a rod or lath of wood to take the height and breadth, allowing for freedom. He can mark the place of his hinges accurately on this rod, and cut their place by it on both the door-frame and door-stile. If he but practises this method, he will find that it will save him a great deal of useless labour in lifting the door, propping it up, and marking it along by the edge of the door-frame. If the workman is on piece-work, we would advise him to adopt this method, for certain we are that by so doing he would fit and hang three doors while he would be fumbling over one by the old methods. The wretched appearance of some of the doors and door finishings in our houses is also attributable to ill-constructed partitions. In nine out of every dozen of our dwellings may be seen distorted architraves, doors either dragging on one end on the floor, or rubbing on the other against the head of the door-frame, the latter often being pressed down an inch or inch and a half out of square. The wall may be seen cracked, the skirting-boards torn from their places, the floors sunk, and the angles between the wall and the ceiling riven asunder. The evil does not rest even here; it is carried up and affects the very roof and outer walls. Bad foundations are not always the cause of this, but badly-constructed partitions. Partitions are placed by some of our architects, as well as our builders, in a manner whereby they do more harm than service. A timber partition requires a good support, as well as a wall requires a good foundation; but how often do we not see them carried from floor to floor one over another, or perhaps a little on one side of another, and all this accumulated weight has to be supported by the floors and outer walls. A dwarf wall should have at least formed their first foundation and support in the basement story. In many of our dwelling-houses, timber or one-brick thick partitions, with studding at intervals, are put up with utter want of thought and carelessness. Many times we have seen them put up on the common flooring, with no other support underneath but what the common joist or joists afforded. If a partition, timber or composite (timber and brick), be put up, and if it range with the line of joists, the joists above which they are raised should be double the thickness of the common joists or more, or two common joists should be bolted together. If they are set upon a floor without any wall or pillar support from below, the partition should be well framed and properly trussed. In all framed and trussed partitions, or in common ones, the principle of the arch should be considered and adhered to to relieve both the floors and outer walls. Some people foolishly consider that if the floor is partly relieved, the wall can be made to bear the rest, or rather they sometimes aim at throwing all the thrust against the wall. If they succeed, which they do not always, they are not to be complimented for their sagacity. Partitions, instead of being a dead weight upon a floor or floors, ought to be made to conduce to the whole stability of the building from base to roof-tree. The exigencies of house-room, want of increased accommodation, and also false economy have been allowed to interfere violently with the principles of construction. Architects have to please their clients in the same manner as parents have to please their children. They are obliged sometimes to provide a room here, and a closet there, to suit the peculiar whims of people who do not know their own mind a minute. From these causes evils arise, and a lasting deformity, or an eventual crash, is the consequence. All timber partitions that are not framed or trussed should be well bridged at least with a double or treble row of herring-bone bridging, according to the height.

Where large halls are required on second or higher floors, and where numerous small rooms and closets are required to be partitioned off, above these halls,—in this case, the architect has to exert his powers, and exercise his judgment. He can raise no support in the hall, column, or otherwise, without partly spoiling the effect, or occupying needed space. A girder must be hit upon in this case to get over the difficulty of supporting the heavy floor above. With a girder of sufficient depth and width for the span, trussed with queen-posts, and a horizontal tie, with the addition of good struts, the difficulty may be got over nicely. Suspension-rods might be also used in this case from the roof. This plan, however, ought to be only used in connexion with a strong, well-framed roof. Badly-constructed partitions are the cause of badly-fitting doors, undulating and creaking floors, open joints in mouldings and trimmings, cracked ceilings, and a host of other eyesores and evils.

Returning to the subject of doors, their hanging and finishing, we will say a few words more about their furniture. Mortise locks are the best for all inside doors aiming at any respectability, but mortise locks much smaller and better than what are at present used. We have often wondered how it was the large old mortise locks so common in our buildings have been retained so long. In the putting of them on both the stile and middle rail of the door are considerably weakened, at a place where they require strength. Unless the door was an uncommonly thick one, the old-fashioned mortise locks nearly destroyed the stile and tenons of the lock, or middle rail. Rim locks are not to be recommended, no matter where they are to be used.

On common closet doors and bedroom doors, even at the top of the house, they are not serviceable. Being on the face of the door, they are unsightly, and, together with their projecting key, box staples, and sharp rim edges, are liable to catch in people's clothes and articles of dress. Those who require self-shutting doors in a house can have them; but we think it is better to dispense with these contrivances for inside parlour or drawing-room doors. An inside door is not like a hall door or a shop door. A parlour or drawing-room door can be closed better and more carefully by the hand that opens it than by mechanical contrivances; besides, no necessity exists, as far as we can see, for door-opening and door-closing contrivances in parlours and drawing-rooms. With public offices, of course, under some conditions, a porter can be dispensed with; but when we can do without our servants altogether we may think of adopting more advanced methods of indulging our laziness, and getting ourselves fed by machinery, as well as waited upon. A few more remarks to workmen may not be out of place. Every young apprentice workman thinks he can fit and hang a door. It is such a common task, he thinks it is impossible he can do it badly. Yet let us say there is a little skill and taste required in the proper fitting and hanging of doors. We are sometimes astounded to see so many frightful examples of bad door fitting, and hanging, and finishing exhibited in our dwelling-houses. It would appear to us that the more easily a thing can be performed, it happens as a consequence that it is performed badly. We have known workmen to hang a door in half an hour, while other men spent over a similar task half a day; and if they were to spend a week, it would not at the end of that time be properly done. Practical workmen who read these remarks will understand us. Nothing is more unworkmenlike than to leave the hinge of a door badly fitted, its bed cut too large for it, and bits of wedges or pieces of stuff glued in to fill up gaping wounds — everything trusting to the daub of paint to cure the eyesore. Sometimes it is a lump of putty the architect, builder, clerk of works, or foreman will find is pressed into service for making a close joint or fit. Putty is peradventure betimes the salvation, but more often the death of the botch. Putty is useful in its way—it is useful for glazing, or for stopping up a nail-hole, but it ought to be discarded from the appliances of the good workman.

The surest test of good workmanship in building is that neither workman nor employer shall feel afraid to have it examined before it gets even one coat of priming colour. But how often is it not the case that both builder and workmen are in a sputter when they hear the architect or owner is coming, to hide the evidence of their neglect or guilt. Haste all hands too: corruption and foulness are bridged over, or plastered in, and wounds and rottenness are puttied and painted over.

DINNER FOR BUILDERS' BENEVOLENT INSTITUTION.

THE twenty-third anniversary festival in aid of this charity took place on Thursday, the 27th ult., at Willis's Rooms, King-street, St. James's, the President (Mr. Alfred J. Mansfield) in the chair, supported by a large number of the leading builders and building material factors of the metropolis.

The usual loyal and patriotic toasts having been duly honoured (Mr. Stirling replying on behalf of the Volunteers to that of "The Army, Navy, and Volunteers," with which his name had been coupled),—

The Chairman proposed the toast of the evening,—"The Builders' Benevolent Institution —may prosperity attend it!" He had very great pleasure in seeing so large an attendance that evening in the interests of the Institution, which was founded twenty-three years ago, and it gave him further pleasure in seeing its founder (Mr. Cozens) among the company. The Institution was established for the relief of any members of the building trade, or of the trades connected therewith, who might, from adverse vicissitudes of fortune, become reduced in circumstances. The Institution had since its establishment gone on satisfactorily and prosperously. It had, however, sustained a misfortune this year. The directors had made a mistake; they had, unfortunately, elected a very inefficient president. He hoped, however, that the members would most zealously aid the directors in averting any loss to the Institution that blunder may have entailed; and if they would only be so kind as to overlook his shortcomings, he should feel very greatly indebted to them. He felt a great interest in the Institution, and he would do all he could to further its prosperity. There were now 44 pensioners in receipt of annuities from the Institution—22 men and 22 women. The males each received an annuity of 24*l.*, the females each 20*l.* He should be very glad to see these annuities increased—those of the men to 30*l.*, and those of the women to 25*l.*, and he was sure that one and all of the gentlemen there present would also be very glad to see that result attained. He therefore asked them to endeavour to effect that object, and to aid the Institution by increasing, if possible, their annual subscriptions, and by publicly making known the good that the Institution effected. The number of persons who had received aid in the shape of annuities from the Institution since its establishment was 108. These figures showed how much good had been done—how much distress had been alleviated, by the operations of the Institution. He asked the company to invite further subscriptions: if they could not obtain guineas, let them take half-guineas. There were many builders and many persons connected with the building trade who had made large fortunes, and there were many, doubtless, who were making larger fortunes now; but, alas! there were many also who, supposing themselves to be in the right groove to prosperity, had suddenly glided backwards into poverty. These it was the object of the Institution to relieve; and therefore he asked them to drink most cordially and enthusiastically to the prosperity of the Builders' Benevolent Institution.

Mr. Benjamin Hannen, in proposing the next toast, said that the task he had to perform was a very agreeable one, viz., he had to ask them to drink to the health of their worthy President, the Chairman of the evening. He was sorry to say that he had not been able, up to the present time, to invent any way of getting over the difficulties of praising a gentleman to his face. If his friend Mr. Mansfield had not been present, he (Mr. Hannen) should have reminded the company that this was not the first generation of the Mansfields who had done honour to the building trade. Having had the pleasure of knowing the Chairman's father, he (the speaker) should be able to say to his friend in the chair that he was quite certain that he was following in the steps of his father, and that he was likely very much indeed to increase the credit of that name, and the respect in which it was held. He was quite certain that there were none present who were acquainted with him who did not know that there did not exist in the trade a more straightforward man of business. If they wanted to consult a man with a clear head, guided by strict integrity, they could not do better than go to him, and he (the speaker) might say that there was no one in the building trade whom he was prouder to call his friend than the gentleman who then filled the chair. He should have added, but for a circumstance which had occurred that evening, that they could not have had a more charitable man than Mr. Mansfield as president, but in face of the gross libel which the Chairman had put forth concerning the present President he had nothing to say to that whatever.

The Chairman having briefly replied, he proposed "The Patrons, Vice-presidents, and Trustees."

Mr. Robinson, in reply, said he regretted exceedingly that none of the trustees were present. He might say, on their behalf, however, that they had the interests of the Institution deeply at heart, the duties they had to perform in connexion with it being a source of sincere pleasure and a labour of love to them. In their name, he thanked the company for the manner in which the toast had been responded to.

Mr. George Plucknett, in returning thanks, as treasurer, said he naturally took a great interest in the institution, with which he had been connected for several years. He was desirous to see it prosperous, and he wished it was in his power to do more than he did for it. His office as treasurer brought the affairs of the institution before him in a prominent manner, and he could testify that they were managed by a most excellent committee, who took the greatest possible interest in the expenditure and in all matters relating to the prosperity of the Society. He took that opportunity of bearing his humble testimony to their exertions, which, on his part, he was always happy to second. He was glad to see their excellent chairman that evening taking his post, and feeling that, while looking out for his own prosperity, he was glad to give his time in trying to provide for those less fortunate than himself. He also begged to thank Mr. Hannen, whom they all remembered two years ago taking the chair for the Institution, and doing so much for its benefit. He was sure they were all proud to have a man of his ability in connexion with their society. But in speaking of the prosperity of the Institution, he must notice its drawbacks, which he wished he could urge upon all present and all connected with the trade. It was a very hard thing, but some six or eight poor people were turned away from the Institution every year because it had not quite enough to provide for them. When those poor people came to the Institution, they were far stricken in years, and two or three years' delay was a very great time to them out of the short period they had to live. He felt the more concerned at this because there was a vast number of men belonging to the trade who did not subscribe to the Institution. The greatest possible credit was due to the large employers of labour. A glance at the subscription lists would show the large sums they had for years contributed to the Institution. But it was not so with a very large proportion of builders, and it was to be regretted that out of the money they doubtless spent carelessly every year, they did not send their half-guinea or guinea to the Institution. If only a small portion of the men he referred to were to come forward they would be able to provide for all those applicants now turned away, and have abundance of funds. He hoped, therefore, that all present would, as they had opportunity, bring the claims of the Institution prominently forward. An appeal had already been made to the class of men referred to, but with a very unsatisfactory result. They did not mean to let it rest, however. He had already seen the Institution make great progress, and he hoped he should live to see the time when the Institution would be in a position to relieve the wants of all its applicants.

Mr. A. G. Harris, the secretary, then read a list of subscriptions, amounting in the aggregate to upwards of 370*l.*, a slight advance upon former years. This announcement was received with great applause.

The Chairman next proposed "The Architects and Surveyors." Without the architects the building trade would indeed be in a sorry plight. The builders were much indebted to them. Walking through the streets of the metropolis or of any provincial town, he thought they might be justly proud of the productions of the architects of this generation, and he thought those productions, whether in ecclesiastical, municipal, or domestic architecture, might vie with the modern architecture of foreign countries. The builders were also very much indebted to the gentlemen of the other branch of the profession—the surveyors. Without the surveyors the building trade could not get on. They (the company) thanked them very much indeed for all the aid and assistance that they continually gave. With the toast he begged to couple the name of Mr. Young.

Mr. Young, in responding, said he was afraid the architects and surveyors had a very unworthy representative in him, but no one could respond to the toast with more sincerity than he did. He was very much indebted to both architects and builders. He knew many architects personally, and he was sure, seeing their specifications as he had, that the company, as a body of builders, must have very great confidence in them. There was no doubt that their specifications were very stringent, and if they were not the honourable set of men they were, no body of men with the capital that the builders had engaged in their trade would act under them. He had often felt this, and he knew solicitors had as well. On behalf of "The Architects and Surveyors," he thanked the company most heartily for the way in which they had received the toast.

The Chairman said that the last toast he had to propose was that of "The Directors and Stewards." He coupled with that toast the name of Mr. Cozens, the founder of the Institution. Had it not been for that estimable gentleman the Society would not have been in existence. He had ever watched over its progress, and had devoted his time to its interests. To the directors, also, they were very much indebted for the undivided attention they had given to its interests. He had also particularly to thank the stewards that evening for their kind co-operation in augmenting the amount of the subscriptions.

Mr. Cozens briefly replied, and expressed his gratification in finding such a respectable and numerous company present to acknowledge the fact that he had been instrumental in doing some good. By their exertions they would not only help the unfortunate, but incite others to do the same.

The company then broke up.

MISTAKEN CRITICISM.

SIR,—Ought not the professional critic in pictorial affairs to understand something of architecture? My reason for asking is, because the writer of a notice on the Old Bond-street Gallery, in the *Pall-mall Gazette* of October 17th, has been misled, through an error in the catalogue of that exhibition, into a display of curious architectural ignorance. A picture therein, called "The Florence Market" is obviously a misprint for "Flower Market." In the first place, the architecture in the picture is Belgian or Dutch; and, in the second place, there is no flower-market (the subject of the picture) in Florence, where all the trade in flowers is carried on independently of a fixed market, by flower-girls. The *Pall-mall Gazette* critic, who speaks of this picture as a "rigid but painstaking study of the Mercato at Florence," has been followed by the critic of the *Graphic* of October 29th, who calls the same picture "a carefully painted" one "of the Market-place at Florence." Possibly other critics, whose observations I have not been so fortunate as to read, have been equally careful to be inaccurate in what would be a trifle, if these remarks did not indicate that neither their eyes nor their intelligences are brought into very active play at a press private view.

UNA FIORAJA.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

SIR,—In a leading article which appears in a contemporary last week, commenting on the present management and future prospects of the Institute, the following passage occurs:—

"A *rendezvous* for members is a thing which we cannot help believing is very much required,—apart, that is to say, from the mere ordinary meetings. How this could be accomplished we do not profess to say; but at present an incidental visit to the rooms of the Institute on anything like business is enough to give one the horrors, whilst the idea of a member dropping in when passing, to inquire the news, is quite out of the question. Whether the official persons whom one sees at work are equally devoid of liveliness or other human elasticity when off duty it is impossible to say; but the melancholy of solitude which appears to pervade them and all their surroundings when in harness, reminds, one of a theatre by daylight more than anything else, with funereal carpenters setting the sad scenes."

Will you kindly allow me, through the medium of your columns, to ask the writer of this caustic, but no doubt well-intentioned article, what is the precise amount of liveliness and elasticity which he expects from the "official persons" referred to? Whether he thinks that their duties should be discharged by a happy combination of the pleasure of business with the "business of pleasure?" that they should be bound to entertain him with anecdote when he calls in Conduit-street, or to celebrate his visit in bumpers of champagne?

Does he consider that it would be desirable to engage the services of a few gentlemen from the *Punch* office, who might help to make the secretary's minutes of proceedings more amusing? or, in order to dissipate the "melancholy of solitude," that a German band should be engaged, and instructed to perform, at intervals, in the library?

No doubt a few suggestions on such points would receive immediate attention from the Institute authorities, and would at the same time enlighten many members as to the extent of reform proposed in this direction.

"DULCE EST DESIPERE IN LOCO."

CHARGE OF DEFRAUDING A BUILDER.

AT the Hammersmith Police-court, John Fordham Apps, an agent, was charged with obtaining a cheque for 20*l.* by false representations.

Mr. Thomas Hussey, builder, of Kensington, said that on Thursday last the prisoner came to him, representing that he had fallen over some timber in the street where witness was building, and had broken his arm; that he had been to St. George's Hospital, where it was dressed, and that he had come to him for compensation. Witness had not heard of any accident from his watchman, and refused to listen to the prisoner, who went away. He came again on Monday night and asked witness to settle with him, at the same time urging that it would be very expensive if solicitors were employed. Witness asked him what he considered a settlement, and he said about 20*l.* He took the prisoner's name and address, and promised to make inquiries. The prisoner came on the following night by appointment, and he gave him a cheque for 20*l.*, but he immediately charged him with obtaining it by false representations, as he had found that he had been to several other builders and attempted to defraud them.

The Prisoner, who carried his left arm in a sling, wished to know what the false pretences were.

Mr. Dayman said,—representing he had broken his arm by falling over some timber.

Mr. John Walter Hamilton, manager to Messrs. Colls & Sons, builders, Moorgate-street and Camberwell, was called as a witness in Mr. Hussey's case. He said that on Friday last a letter was received from the prisoner claiming compensation for breaking his arm on the Thursday previously by falling over a block of stone at St. Philip's Church, Queen's-road, Battersea. An answer was sent, and the prisoner had since called at witness's office, but he was out at the time.

Patrick Donovan, Mr. Hussey's watchman, said he was on duty on the night of Thursday week, but he did not see the prisoner. He also denied that any timber was lying about the road.

Mr. Dayman decided upon remanding the prisoner.

THE REFUSE OF TOWNS.

SIR,—Your very able article on Sewage Irrigation, in your issue of the 22nd ult., appears to me to go a little too far in discarding all processes except irrigation for the disposal of the refuse of towns.

Wherever irrigation has been adopted, the necessity for extracting the *solids*, to prepare the fluid for that operation, has become apparent; they must therefore be got rid of by some other process in conjunction with the former, and, if used for manure, as they ought to be, must either be carried to and used on the arable land at once, or turned out on the mixen. There are also many towns for which irrigation could only be adopted at a ruinous outlay, where, in fact, irrigation is practically impossible and consequently where processes must be established in substitution thereof.

You seem to hold that no contrivance yet extant will answer for this purpose, and experience would appear to bear out your conviction. The reason, in my opinion, for the want of success in the best-known processes of precipitation and filtration, is that in all of them the solid matter remaining mixed with the fluid is thereby in great measure dissolved, and tends to saturate the fluid with its soluble parts before either precipitation or filtration has commenced; and,—whatever opinion our chemists may inculcate with regard to their richness in fertilising but noxious elements of the fluid, and the poverty, on the contrary, of the solid parts of sullage,—practice demonstrates that the first are very easily decomposed into harmless matter, whilst the solution of the two combined is very refractory. When, however, the solids are extracted in their normal state, much fertilising matter is retained in them, and the fluid, by means of combined precipitation and filtration, is easily rendered innocuous.

The second Rivers Pollution Commission informs us that the effluent sullage of London, which contains all the soluble parts of the solids, is sufficiently decomposed in its passage through a certain proportionate mass of sand, to admit of its flowing at once into the nearest watercourse. If such is the case, there is surely no great effort of science in constructing a filter with an equivalent medium for the fluid elements only, especially if, in conjunction therewith, proper precipitants are employed. Four years' experience has so convinced me of practicability of such a process that I have offered to establish at my own cost the necessary works for purifying the effluent water from the sewers of four towns on the Thames, reserving the repayment of my outlay until their efficacy has been demonstrated to the satisfaction of the Thames conservators.

The sums demanded in the event of success contrast most favourably with the estimates for carrying out all other schemes proposed, and yet the commissions and select vestries—no doubt from compassionate motives—have during a long period demurred and continue to hesitate to accept my proposals, alleging in one case as a reason for not at once accepting my offer, that an Act may be passed next session to cause them to lay out all their means in establishing a much more costly system of sewerage.

I venture further to make one comment on the very comprehensive leading article in your last issue on "The Settlement of the Sewage Question." This, with the former article, is so exhaustive of its subject that little remains to be added to make them a complete review of the present state of the question.

In this article you uphold the "separate system;" that is to say, that the sullage and the rainwater should be conveyed by separate sets of sewers to different destinations,—the sullage or refuse to the land, and the rainwater to the water-courses. If this system effected all that was absolutely necessary, and got rid entirely of the polluting matters from cities, a great many of the difficulties and expenses met with in carrying out their sewerage would be overcome; but unfortunately the surface refuse is thereby unprovided for in the sewers, and is consequently carried off by the surface drains to pollute and cause sandbanks in the water-courses.

No part of the refuse of towns is so noxious as its road-dirt; and as long as this element of pollution is allowed to escape into the water-courses, the entire purification of our rivers will not be effected.

In all well-arranged systems of sewerage the area of the gully-grates communicating with the sewers is limited in such manner as only to admit during heavy storms the first scourings of the streets and houses, leaving the surplus rain to flow away through surface drains or along superficial channels.

There is no doubt that in almost all cases deep drainage should not be neglected, and should be effected by means of channels constructed under the bed of the impervious sewers.

CHARLES E. AUSTIN.

A NEW PHASE IN COMPETITION.

SIR,—It is proposed to erect a new church at Putney, Surrey. A committee was appointed, who invited six architects to send in designs in competition. The designs have been sent in, and, to the surprise, I should think, of all the competitors, there are two designs sent in by two architects, members still of the committee.

A COMPETITOR.

PERVIOUS ROOF TILES.

SIR,—Could any of your readers recommend something to apply to roofing tiles to prevent their absorbing so much water as they do?

I have a house covered with tiles, and, requiring a good supply of rain water, have provided a large underground tank, but am disappointed that the tiles yield so little water in showery weather, as they absorb so much. If some effective varnish or colourless paint, that would not injure the water, and would come moderate in price, could be brushed over them, it would check this. A tile appears to weigh 2 oz. more when wet than when dry.

Is it not a desideratum in building that some tiles should be made free from the before-named objection?

RAIN WATER.

TAR PAVEMENT.

THE pavement your correspondent, Thos. H. Methven, mentions can only be fit for footpaths, and he appears not to have made any foundation for it. It is usual for every kind of paving to have some good hard dry stuff to lay it upon. The tar pavement I have had laid has lasted many years. Mr. William Wright, of Victoria-road, Deptford, has laid a large quantity of it, and I believe still continues to take contracts for it.

THE LAYER OF THE PAVEMENT.

THE COMPLETION OF ALL SAINTS', CAMBRIDGE.

CONSIDERABLE progress has been made during the past year towards the completion of this edifice. It has been consecrated six years, and from the extreme severity of the architecture, and its very unfinished state, it was subjected to much adverse criticism. For lack of funds, the most striking feature in the design was omitted, nothing but the foundation and the arches for supporting the tower being completed at the time of consecration. By a liberal offer from a parishioner, the vicar was induced to form a committee and make an effort to provide for Cambridge what was so greatly missed, especially in a distant view of the town, a lofty and beautiful spire. The spire proper has been completed, and the vane, the gift of the Chancellor of the University, was fixed by the vicar and his churchwarden, Mr. Bulstrode; but there still remains to be built a parapet on the tower, and a spirelet of an ornamental character, about 24 ft. high, at the N.E. angle to the staircase. The total height of the spire from the ground is about 185 ft. The plain mullions have been removed from the north windows of the nave, and the heads filled with rich tracery. A new stone wall with iron gates has replaced the erection which so long disfigured the church. The whole of these works, from designs by Mr. Bodley, of London, have been carried out by Mr. Loveday, of Kibworth, contractor. Within the building progress has also been made towards its completion. The work of decoration has been begun. The roof of the nave has been decorated with black monograms, and varied scroll-work in red colour on the plaster ground. A tall inscription in old English character shows the dedication of the fabric in honour of All Saints, by rehearsing the eight beatitudes. Mr. F. R. Leach, of Cambridge, is carrying out these works. The nave roof has been decorated by Mr. Leach, at his own cost. The whole scheme of decoration and designs is under the superintendence of Mr. C. E. Kempe, of London.

THE NEW HARTLEY WINTNEY UNION WORKHOUSE, ODIHAM.

THE new Hartley Wintney Union Workhouse is now in course of erection at Winchfield Hurst by Messrs. Joseph Bull & Sons, of Southampton, contractors (who have carried out various works in Hampshire and the adjoining counties), from designs by Mr. Edmund Woodthorpe, of London, architect. The members of the Board lately visited the new edifice in procession to complete a tablet which has been erected there containing a list of their names. They were met at the entrance of the building by Mr. Woodthorpe, Mr. H. W. Bull (the senior partner in the firm of Bull & Sons), the clerk of the works (Mr. H. Sanders), two of the architect's staff, the foreman of the works, and others, and the large party were then conducted over the new workhouse. In the main entrance are the male and female tramp wards, and then comes the courtyard, which brings one to the entrance of the main block, where are the board-rooms, dining-hall, kitchen, offices, &c. On the left are work-sheds and laundries, with spacious courtyards leading to the infirmary, which is very nearly completed, as are also the fever wards, the latter being in a forward state. The building is in five blocks, somewhat similar to those at the Southampton Workhouse, and the three in the rear are rapidly approaching completion. The main block and other parts are also roofed in and slated. The house is designed to meet every requirement and regulation of the Poor-law Board. The contract is 10,000*l.* The chairman called the workmen around him, and ordered that they should be supplied with refreshment. The party afterwards partook of a *déjeûner* at the George Hotel, at the invitation of Messrs. Bull & Sons.

THE AURORA BOREALIS.

WITHOUT laying any stress on the "gigantic figure, with bare arms and hands, which were extended upwards as in prayer," and on the belief that the destruction of the world can be foreshadowed by a demonstration of a sign arising from the effect of an aurora borealis, which can be scientifically accounted for by, and referred to, natural causes,—still there sometimes occur coincidences not altogether uninteresting or unworthy of being recorded.

In "Joyce's Scientific Dialogues," mention is made of an aurora borealis which occurred on Monday, October 23, 1804; it was as remarkable as that seen on Monday, October 24, last. Now, by referring to a chronological table of remarkable events, we find that, in 1804, Napoleon I. was proclaimed Emperor, and in the following year, 1805, on October 21, the battle of Trafalgar and the death of Nelson took place. Still, as Ovid says:—

> "Nature knows
> No steadfast station, but ebbs or flows:
> Ever in motion; she destroys her old,
> And casts new figures in another mould;"

and Lucretius tells us that "the world itself is ever young, but its transitory scenes pass swiftly by. Men come, men go, eager as in a race; each stretches forth his hand to seize the torch of life." So much for the perpetual flux as ordained.

It would no doubt be interesting to prepare a table setting forth each most remarkable aurora borealis, with the meteorological observations of the following winter and the events, if any, in connexion.

W. P. GRIFFITH.

CHURCH-BUILDING NEWS.

Meerbrook.—St. Matthew's Church, Meerbrook, has had a memorial tower and chancel erected to the memory of the Condlyffe family, the expense, about 1,100*l.*, having been borne by Miss Catherine Condlyffe, the only survivor of the family. The church now wants a new nave to correspond.

Kearsley Moor.—The memorial stone of the new church of St. Stephen, which is now in course of erection at Kearsley Moor, near Farnworth, has been laid. This church has been projected for several years, but difficulties, mainly connected with the site, have until recently delayed the execution of the scheme. The site has been given by Mr. Starkie, and lies between the National School and the Manchester and Bolton turnpike road. Since the foundations were laid, the building has progressed rapidly, and in some parts is nearly ready for

the roof. There will be accommodation for about 540 persons, and the cost will be somewhere about 3,200*l*. The design for this church was chosen in competition some years since. It is in the Decorated Gothic style.

Watford.—The new chapel erected for the use of the inmates of the Union Workhouse has been opened by the Bishop of Rochester. The new structure is at the south side of the Union House, and it stands on ground that was formerly occupied as the kitchen garden. It is in the Gothic style of architecture, and built of brick, with Bath stone dressings. The principal door is on the north side, and at the west end there is a bell turret. The walls in the interior are of plain brick, relieved by some courses of a darker colour. Accommodation is provided in the nave for 272 persons, the length being 70 ft., the width, 25 ft., and the height to the ridge, 37 ft. The roof is of open work of stained deal; the open seats and other fittings are also of the same material. The chancel is distinguished from the nave by a light screen, on two slender pillars supporting the roof. At the entrance are the reading-desks and pulpit, occupying respectively the south and north sides. A wall on either side, from the east wall, encloses the altar, and the spaces outside will be occupied, that on the north side as an organ-chamber, and the other as a vestry. The floor is laid with Godwin's Hereford encaustic tiles of various colours, worked in patterns. The east window is partially filled with stained glass. In the centre is a small group, "Christ blessing little children." Above are figures, one in each light, symbolical of Faith, Hope, and Charity, and each of the lights has an ornamental border. For the reredos there is a small arch, within which is a marble cross on a ground composed of different marbles, having a peculiar effect. Mr. W. J. Hopkins, of Worcester, is the architect; and the work has been carried out by Mr. G. Warner, builder, of Malvern Link, Worcestershire. The contract was taken for 820*l*., and the sum in hand for the purposes of the building amounts to 1,077*l*. The building is still in an unfinished state, there being no glass in the windows; advantage was, however, taken of the presence of the Bishop in the neighbourhood to open the chapel.

Hertford.—St. Andrew's Church has lately received an addition in the shape of a memorial window of stained glass, which has just been placed in the south transept of the church by Mr. P. Longmore. It has two lights: in one is a representation of Christ blessing little children; in the second, the miracle of the loaves and fishes. In the trefoil, at the top of the window, is a king, crowned. The window was supplied by Messrs. Lavers & Barraud, of Bloomsbury.

Amble.—The consecration of St. Cuthbert's Church, Amble, has taken place. The church has been built from designs by Messrs. Austin & Johnson, of Newcastle, architects. It is in the Early Decorated style, parallelogram in form, and will seat about 360 persons. Mr. Carse, of Amble, was the contractor for the mason's work; Mr. Gilby, of Warkworth, for the carpenter's work; Mr. Fortune, of North Sunderland, for the tiler's work; Mr. King, of Morpeth, for the plumber's work and gasfittings; and Mr. Bowman, of Morpeth, supplied the glass for the windows.

Bristol. — St. Peter's Church has been reopened for public worship. Last year the stonework of the building was restored, at a cost of 250*l*.; and within the past few weeks about 600*l*. have been spent in cleaning the building and improving and augmenting the accommodation. Amongst the principal alterations and improvements may be mentioned the removal of the high pews and the substitution of open benches with carved ends. The organ-screen over the chief entrance has been taken away, and the space thus acquired, with the re-pewing in modern style, has given 200 additional sittings. The organ is to have 200*l*. spent upon it, and is now in the hands of Mr. Vowles, for renovation and improvement. In the chancel, which has been remodelled, oak stalls have been substituted for the reading-desk and churchwardens' seats. The old pulpit has been removed and a new one of freestone, with alabaster shafts, erected in its place. In the chancel, also, have been placed two brass gas-standards.

Starston (Suffolk).—The church of the village of Starston has been restored, and enlarged, and re-opened for divine service. Until this year the church consisted of a nave and chancel, south porch, and west tower. Its erection is of various dates. The walls of the nave are of late Norman work, having been since filled in with windows of the Decorated period. The roof of this part, the whole of the chancel, west tower, and porch are in the Perpendicular style, or about the commencement of the fifteenth century. The nave roof is very good in detail, and has been illustrated in Brandon's work on "Open Timber Roofs." It has been restored and re-leaded; all the old parts which would from their soundness permit of being preserved being retained, and the necessary new work has been made similar in size and form to the old. The church was, about twelve years ago, benched in oak; but the rector, the Ven. Archdeacon Hopper, has for some time felt that the accommodation was not sufficient. He, therefore, determined to enlarge it, and called in the assistance of Mr. R. M. Phipson, the architect. Mr. Phipson suggested that the additional room required would be best obtained by throwing out a north aisle, and that the organ-gallery which still remained might be dispensed with, and a new organ-chamber built at the east end of this aisle, opening with stone arches into it and the chancel. This has been accordingly done. Three stone piers and arches in the Decorated style are introduced where the north wall stood, and the windows which were in this wall are re-fixed in the new aisles, the west window being new, of similar character. The roof of this part is made of pitch pine, moulded and carved, and covered with lead. When pulling down the north wall, in about the centre of it, and within 2 ft. of the ground, a niche was discovered. It was about 4 ft. wide and the same in height, measuring to the top of the arch, and had evidently been bricked up for some centuries. It was about 1 ft. deep, and on he wall at the back of it was painted, in very brilliant colours, a scene representing the death of the Virgin Mary. The colour shook off like dust, but a drawing of it has been made, and will form one of the illustrations of the *Archæological Journal*. The additional seating is of the same character as that put up twelve years ago. The church is heated by Gidney's underground stove, and the whole of the work has been done by Mr. Grimwood, of Weybread, the cost, including every expense, being a little under 1,000*l*.

Highclere.—In the beginning of last year, Lord Carnarvon instructed Mr. Gilbert Scott with the preparation of designs for Highclere Church. The works were begun early in June of the same year, and in July, the principal stone was laid by the Countess of Carnarvon. The works are rapidly approaching completion, and it is expected the consecration will take place in the last week of November. The church is situated just below Clear Lodge, on the road from the park to the village, and forms a prominent feature in the landscape, when seen from the Andover road. The style is Early English, of the fourteenth century. The church is built of flint stone, having all dressings of Bath stone. The plan is in the form of a Latin cross, and of course stands east and west. From the approach from the village, the west elevation and the west gable are first seen, flanked with buttresses, their weatherings terminating in a trefoil coping: between and round the buttresses is a projecting string, over which is a two-light window, having projecting labels, terminating in carved bosses. The two-light window is surmounted by a circular window having eight cusps, and a label and bosses richly carved. On the north elevation is the main entrance door, with a moulded arch, with label and carved bosses. Further on are two two-light windows, having irregularly shaped quoins and arch stones; beyond this lies the tower, flanked on every side by stout buttresses; in both angles are projections for the doors to the vestry and ringing-rooms, the projection for the admission of the turret stairs having the stone weathering finishing in a carved cross. The tower measures 54 ft. in height, being surmounted by a spire, estimated at about 48 ft., the height thus being 102 ft. to the top of the spire, without counting the vane. The tower is perforated with many lights and openings, and the spire has four projecting dormers, filled up with louvre boarding. Beyond the tower are the windows to the chancel, having moulded arches, projecting labels, and bosses to the same, carved in the natural foliage of the country. We now come to the east elevation, the most richly carved and decorated portion of the building externally. The gable is supported on the front by four buttresses, flanked by others at the angles. The main feature is an arcading, consisting of four arches, supported on shafting. These form niches. In the centre of each is a carved corbel (presumably, these corbels are intended to receive statues of the four evangelists). Over this is a wheel window, richly moulded, having carved spandrels, with carved label, terminating in carved bosses. The gable terminates in a cross. The south elevation consists of a series of windows, throwing light into the chancel and aisle. These are much similar to those already described. The whole of the roofing is covered with ornamental red tiles, set in patterns, and the east end of the nave is surmounted with a stone cross. On entering the church, the first thing that attracts the attention is the nave arcade, consisting of a series of octagon stone shafting, resting on carved and moulded bases, and surmounted by carved caps. From these spring the moulded arches, having labels projecting and terminating in bosses, representing female heads in a devotional attitude. The corbels on the responds of the nave arcade are carved, representing male and female heads crowned with thorns. The windows in the nave and aisle have stone sills, coins, and rear arches, dying out on the jambs. The responds of the chancel arch are supported by shafting having carved caps. The chancel arch contains richly arranged mouldings, the centre one being carved in a dog's tooth carving. The corbels from which the chancel inner arch springs are carved, representing male and female heads "piously expressive:" these are surmounted and crowned with flowers and foliage conventionally treated. The tower arch is formed to contain the organ, and on the south side of the altar is a two-light window, forming two seats. The most notable thing in the chancel is the reredos just over the altar: it is composed of coloured marble shafting, having bases and arches of Caen stone, with carved medallions in the spandrels: it is partly crowned with cresting and crocketing, carved. The floor of the sanctuary is laid with encaustic tiles of a variegated pattern, which, we understand, was designed by the Rev. Lord A. Compton. The chancel is laid with glazed Minton tiles, artistically arranged. There are three stone steps ascending to the altar-rail. The choir stalls are ranged along each side of the chancel and close to these is the door of the vestry, which is situated under the tower. The floors of the nave and aisle are laid in black and red tiles, in different patterns, and the church is seated for 250 sittings. The monuments are a notable feature in the church. Much expense must have been required to remove these from the old church and restore and fix them here, especially the Kingsmill monument, which was done by artists from London, and forms a prominent feature near the door. Quaint inscriptions on some of the tablets are worthy of notice. Among others we noticed a statue by Roubilliac, which is not a common thing in a country parish church. The roofing in the chancel aisle and nave is an open one, and is of stained and varnished wood. We understand several memorial windows are at once to be inserted. The church is to be heated with Gurney stoves, and thirteen of Moore's ventilators have well provided for the ventilation. Messrs. Jackson & Shaw, of London, are the contractors for the works; Messrs. Farmer & Brindley were selected by Mr. Scott as the artists for the carving; Ravenor, Brothers, executed the decorations; and Mr. Blackie is clerk of the works.

Clapton Park. — The foundation stone of All Saints New District Church was laid on Saturday last, the 29th of October, by Mr. A. J. B. Beresford, M.P. The Rev. J. F. Stammers, the incumbent designate, assisted by several of the local clergy, officiated. The Church, which will accommodate upwards of 800 worshippers, will consist of a nave, lighted by a clearstory, aisles, chancel, and south aisle, with vestries and organ-chamber on the north side of the chancel. The walls will be faced externally with Kentish rag, and internally with red brick, relieved by coloured bands. The tower and spire, to be hereafter added, will be erected at the west end of the south aisle of the nave. The style of architecture adopted is the Geometrical of the end of the thirteenth century. The architect under whose supervision the above works are being carried out is Mr. Francis T. Dollman. The contractors are Messrs. Dove Brothers.

Hereford.—Canon Pyon Church has been reopened, after restoration, under the superintendence of Mr. Ward, architect. The roof of the nave is the chief feature of the restoration, and was begun some years ago, but delayed from

want of funds. Mr. Chick dealt with the chancel and Mr. Haddon with the chancel screen and stalls.

Books Received.

THE *Rectangular Review* for the current quarter sustains our good opinion of it as a well-conducted periodical, notwithstanding its somewhat crotchety and unfortunate name, which certainly stands in its way as a successful quarterly, of general interest to the public. The present issue contains papers on "Our Scholastic Institutions," "Ancient Mottoes," "Opera and Drama," "Bismarck and the Bismarcks," with portraits of the Count and his wife, a view of his home in Pomerania, and a sketch of his coat of arms. There are also papers on "Analogies of Music and Painting;" on "Freemasonry: its Use and Abuse;" on "Incremation *v.* Interment and Undertakers;" on "Beauty and Cosmetics;" and others.—*Fraser's Magazine* for November contains a paper on "Modern Italian Art," from which we may quote a passage or two:—

Italian art of to-day, like its literature, is too much a reflection of the past. The former especially is kept in existence rather by its traditions and erudition than by an understanding of the life of to-day. Government considers it a duty to foster art by means of academies, competitive exhibitions, free lectures, and the annual purchase of certain works. Art, like other education, being made a pensioner of the State, as might be expected, the public assumes no responsibility in the matter, except under official pressure or professional clap-trap, when some personal interest is at stake. There are no Italian buyers of works of art to speak of. Works purchased by the Government are usually put where they are little seen. In general they are not worthy of exhibition. Unless Italy ceases as entirely to live in her old æsthetic as in her effete ecclesiastical and political training, the promise of a future in art commensurate to her ancient renown is absolutely nothing. New Italy has to make its gods in its own image. A nation, like an individual, can make a genuine character for itself only by strenuous exertions in harmony with its specific conditions. Now, the clever artists of Italy look two ways at once for guidance—one eye turned on antiquity, and the other to the Imperial French school, which is as bad a guide in refounding their national art as are Napoleonic ideas in remodelling their government."

——A specimen of "A Dictionary of Technical Terms relating to Iron; in French, German, and English," in course of preparation, by Alex. Tolhausen, Ph.D., Translator to the Patent Office, has been published as a supplement to the *Engineer* of 14th October, 1870.

Miscellanea.

The Truck System in the Black Country. The *Birmingham Daily Gazette* has sent a special commissioner into the Black Country to inquire into the working of the "Truck" or "Tommy" system. The first of his letters, which appeared on the 31st ult., brings to light an amount of misery among the nailmaking trade in Dudley perfectly heartrending. He says,—"The houses of nailers are generally to be found in the lowest part of a town or hamlet, in filthy courts and back slums. Take, for instance, those in Dudley. We find them in Badger's-square, in a disgusting court in Tower-street, at the Belpers, and the Barracks. So pinched with poverty are the tenants of the dens and holes here situated, that the small rent demanded cannot be regularly paid. Consequently, landlords can ill afford to lay out money in repairs, or in sanitary operations. Tenants thus become the victim of disease. Upon a recent visit to the barracks, in Dudley, we found the houses in a miserably dilapidated condition, and some of them not fit for occupation. The out-houses (within two yards of the back-doors) were running over with filth, and the adjoining ashpits topful. In close proximity to these places are the workshops of the nailers. It will not be surprising, then, that fever should be raging in the locality."

Site of Market for Foreign Cattle.—The Corporation of London, as it appears by the report of the last meeting of Common Council, have under their consideration the adoption of a suitable site for the intended new market for foreign cattle. Deptford dockyard, it is now said, might be utilised for this purpose; and the markets committee are about to inspect and report upon its suitability.

St. Paul's Cathedral.—According to the *City Press*, the Girdlers' Company have voted the sum of twenty guineas towards the fund being raised for the completion of the interior of St. Paul's. Eleven of the City companies have recently subscribed to this great work.

Locomotive Street Vehicles.—In originating the modern velocipede movement, as we not long since showed, the *Builder* suggested the use of various motive powers to be applied to velocipedes, Bath chairs, cabs, and even omnibuses; and, amongst others, india-rubber "accumulators" of power. This, we observe, is now being done in America. The *New Orleans Republican*, in an article entitled "An Omnibus moved by Clockwork," describes a new self-acting omnibus which has recently been tried in that city:—"Underneath the carriage is what seems an enlargement of an American clock-spring made of india-rubber. There is a strong platform, on which the car is to rest, and to this platform is attached the by no means complicated combination of cogs and wheels, which, when acted upon by the elastic power of india-rubber, moves the car with steady motion at almost any given rate of speed. In front, beneath the platform, there is a large wheel, called in the specification of the patent the power pulley, among mechanics known as the master-wheel. It acts like the drum on which is wound the mainspring of a watch. By means of a circular lever, exactly like the horizontal wheel to regulate the breaks in ordinary cars, the master-wheel is turned, and the india-rubber wound round it until that remaining on the pulleys acquires extreme tension. When wound up, the contractile power of the india-rubber bands will give the requisite motion to the machinery for the propulsion of the car. The propelling machinery of the car is provided with a means of reversing its motion, which is acted upon by a lever adapted to the foot; by this means the car can be made to run backward as well as forward with equal facility. There is no necessity to stop the car in order to wind up the machinery. It can be wound up while at full speed with as much facility as a Lepine watch can be wound up while going.

New Bridge at Bathampton.—The new bridge over the Avon, at Bathampton, which will afford a convenient means of communication between that village and Batheaston, has been opened for traffic. It has been erected at a cost of about 2,500*l*, by Mr. Edwin Hill, of Bath. It is a stone structure, built in eight Gothic arches, the three principal ones being in the water, while the other five are land arches. The span of the main arches is 30 ft. each, and the height of the roadway from high-water mark is about 14 ft. The roadway on the Bathampton side begins at the turn which the old ferry-road makes just before coming to the mill, and is about 120 yards in length. It is raised, and enclosed with wooden railings on either side. The length of the bridge is 200 ft., and its width about 25 ft. The parapet on either side is pierced with trefoil perforations, and ornamental caps are fixed at the head of the main buttresses. A toll-house has been built, in the Gothic style, near the brewery on the Batheaston side.

Bradford Corporation and Manningham Park.—The corporation of Bradford some months since accepted an offer from Mr. Samuel Cunliffe Lister to sell to them Manningham Park, at the price of 40,000*l*. The park is situated within the borough of Bradford, and is in the centre of its most sylvan township, Manningham; is beautifully adorned with fine timber; and commands wide and extensive prospects of the hills which inclose the valleys of Shipley and the Aire. The estimated value of the estate is 65,000*l*., but Mr. Lister consented to accept 40,000*l*., on condition that at least not fewer than forty acres of the park should be dedicated for ever to the use of the inhabitants of the borough. The purchase having been effected, after some necessary delay, the mayor and the corporation of Bradford recently entered into formal possession of the estate.

Steel.—The exports of unwrought steel from the United Kingdom in August amounted to 3,136 tons, against 2,712 tons in August, 1869, and 2,444 tons in August, 1868. The exports to France to August 31st this year, amounted to 2,112 tons, against 1,950 tons in the corresponding period of 1869, and 1,667 tons in the corresponding period of 1868. This branch of our exports would appear to be steadily extending.

The Institution of Civil Engineers.—At the opening meeting of the members of this Corporation for the session 1870-71, on Tuesday next, the 8th inst., a paper, by Mr. Thos. D. Ridley, descriptive of the "Cofferdams used in the execution of No. 2 Contract of the Thames Embankment" will be read and discussed.

The Architectural and Archæological Society of Durham.—The Architectural and Archæological Society of Durham and Northumberland held its last meeting for the season on Monday, at Tynemouth and Seaton Delaval. The day was tolerably fine for the season, and there was a good attendance of members. They met at Tynemouth, at eleven o'clock, and proceeded to the Priory, which was examined. At noon the company went by the Blyth and Tyne train to Seaton Delaval, where the hall and church were visited. At 2·49 they returned to Cullercoats, and viewed the Monk's Stone at Monk House. The members dined together in the evening.

Alterations of the Guildhall, Swansea. Seven tenders were received in reply to advertisement. Mr. Phipps, the architect, estimated the cost of the work at about 2,800*l*. or 2,900*l*. The tenders were:—Mr. David Morgan (Swansea), 3,750*l*.; Mr. Wm. Williams (Swansea), 3,507*l*.; Mr. Thos. Rees (Swansea), 3,189*l*.; Messrs. Thomas, Watkins, & Jenkins (Swansea), 3,100*l*.; Mr. Joseph C. Rees (Neath), 2,945*l*.; Mr. Thos. White (Swansea), 2,750*l*.; and Mr. John Everall (Great Malvern), 2,672*l*. The tender of Mr. Everall, being the lowest, was accepted, and the work has been commenced.

Revival of Trade.—At the quarterly meeting of the Manchester Chamber of Commerce the Chairman stated that there had been an enormous increase of business at home, principally due to the war, and particularly in the shipping trade. The railway companies at their Manchester centre had been so overwhelmed with goods of all kinds during August, September, and October, that it had been with the greatest difficulty they could get through their traffic. They had had to work night and day in order to deal with the immense quantity of goods that were poured in upon them.

Covent Garden Opera.—Those who provide the public at this time of the year with good pictures or good music, are entitled to thanks. We have elsewhere spoken of some of the former now accessible in London; let us add an intimation that Mr. Mapleson has commenced a short series of operatic performances at the Royal Italian Opera House with a stronger company than can usually be looked for in the winter, including the admirable Mdlle. Titiens, Madame Sinico, Madame Trebelli, Mdlle. Ilma di Murska, Signor Cotogni, and Signor Faucelli. *Lucrezia Borgia* was given on Tuesday evening with completeness and effect.

Rupert-street Improvement.—We have to congratulate the Vestry of St. James's,—and we might say the whole of the West-end of London,—on the decision now come to with reference to the opening of this communication between Oxford-street and the South. It has been the work of eight years, and the result of divers regular pitched battles and many skirmishes. The Metropolitan Board of Works also deserve acknowledgment for prompt recognition of the recent special opportunities for negociations, which will result in the happy accomplishment of the long-wanted improvement.

Monument to a Welsh Bard.—Progress is being made by Mr. A. H. James, sculptor, of Newport, Monmouthshire, with the monument to be erected at Groeswen, near Caerphilly, by public subscription, to the memory of Caledfryn, who, during his life, was one of the most popular bards of Wales. An immense block of Radyr granite has been laid on the vault as the foundation of the monument, which will be composed of polished red granite, standing upwards of 9 ft. high, the base being 9 ft. square. In one of the panels of the die will be placed a bronze medallion of the deceased bard.

St. David's Cathedral.—Messrs. Wood & Sons, having completed a contract to restore (under the direction of Mr. Scott), the eastern portion of this cathedral, the choir, and the towers, have now received orders to proceed with further works in the restoration of the nave and aisles, together with their roofs (which are all covered with lead), and also the requisite timber ceiling of the former.

The City Library and Museum.—We learn from the daily papers that the first stone of the intended New Library and Museum for the City of London, and of which we gave a view and plans not long ago, was laid on Thursday, the 27th ult.

Pier for Coatham, near Darlington.—A meeting of the promoters of the new promenade pier at Coatham has been held at the Lobster Hotel, when it was unanimously decided to proceed with the formation of a company for the purpose of carrying this pier into execution forthwith. The sum of 3,000*l.* was subscribed, and further promises made will considerably increase this amount. The capital is to be 7,000*l.*, the engineers being Mr. John Fowler, C.E., Stockton-on-Tees, and Mr. C. J. Adams, Stockton and Coatham.

Instruction in Science for Women.—We would direct attention to the lectures on the Elements of Physical Science about to be given in the Theatre of the South Kensington Museum, by Professors Huxley, Guthrie, and Oliver, commencing on the 9th of November, at eleven in the morning. An advanced course will be commenced on the 15th, and the first of six on the Clavecin and Pianoforte, by Mr. Ernst Pauer, will be delivered on the 16th, in the afternoon.

Metropolitan Board of Works Contracts. A correspondent again objects that the Board do not send lists of the amounts of tenders to each competitor. He writes,—"In the case of sewer or road contracts the amounts are generally read out in open court, but in the case of the fire-engines stations, the contracts being settled in committee, the result to the contractors is not in any way made known."

TENDERS.

For new chapel and schools, Heywood-street, Manchester. Mr. Richard Owens, architect. Quantities by Mr. Crowcroft:—

Thomson (City-road)	£2,606	0	0
Tickell	2,581	0	0
Jones	2,494	0	0
Davidson	2,460	0	0
Todd	2,439	0	0
Foggett	2,431	0	0
Parry	2,398	0	0
Davies & Mawdsley	2,369	0	0
Heard & Eaddie	2,355	0	0
Thomson (York-street)*	2,327	0	0

* Accepted.

For stone staircase, vaults, &c., in rear of Nos. 301 and 302, Strand. Mr. J. H. Rowley, architect. Quantities supplied by Mr. T. T. Green:—

Thompson	£1,645	0	0
Snowdon	1,446	0	0
Merritt & Ashby	1,438	0	0
Crabb & Vaughan	1,414	0	0
Henshaw	1,395	0	0
Brass	1,392	0	0
King & Sons	1,379	0	0
Kelly, Brothers	1,373	0	0
Scriviner & White	1,353	0	0
Colls & Sons	1,286	0	0
Sharpington & Cole (accepted)	1,280	0	0

For St. Philip's Schools, Arlington-square. Mr. Gough, architect. Quantities supplied:—

Cohen	£3,350	0	0
Jackson & Shaw	2,946	0	0
Marwick & Thurgood	2,886	0	0
Crabb & Vaughan	2,842	0	0
Chappell	2,799	0	0
Snowball	2,774	0	0
Rolland	2,767	0	0
Wood	2,750	0	0
Colls & Co.	2,723	0	0
Crockett	2,629	0	0
Wright	2,625	0	0
Hill, Keddell, & Co.	2,615	0	0
Marion	2,618	0	0
Windship	2,590	0	0
Myers	2,588	0	0
Newman & Mann	2,586	0	0
Cole	2,576	0	0
Bishop	2,545	0	0
Nightingale	2,525	0	0
Hughesdon	2,495	0	0
Henshaw	2,443	0	0
Blease	2,378	0	0
Gibbs & Son	2,339	0	0
Parsons & Telling	2,235	0	0

For shop and stores, Blackfriars, for Messrs. Spiers & Pond. Mr. E. Powell, architect:—

Barrett & Wickerlow	£8,440	0	0
Jackson & Shaw	7,717	0	0
Moreland & Son	7,623	0	0
Turner & Sons	7,541	0	0
Aviss & Roe	7,494	0	0
Merritt & Ashby	7,445	0	0
Brass	7,436	0	0
Colls	7,380	0	0
Nightingale	7,363	0	0
Fish	7,200	0	0
Newman & Mann	7,186	0	0
Browne & Robinson	7,000	0	0
Jewell & Sons	6,998	0	0
Foster	6,927	0	0
Henshaw	6,837	0	0
Condett	6,760	0	0

For alterations and additions at 15, Harrington-square. Mr. J. K. Colling, architect:—

Kelley, Bros.	£605	0	0
Laidlaw	572	0	0
Nash	568	0	0
Mann	565	0	0
Axford	557	0	0
Nightingale	549	0	0
Eyers	548	0	0

For building public rooms at Belvedere, Kent. Mr. A. R. Pite, architect:—

Whiting	£2,104	0	0
Nightingale	1,873	0	0
Cowland	1,540	0	0
Butler	1,489	0	0
Blake	1,470	0	0
Tongue	1,379	0	0

For a new shaft, 100 ft. in height, for the Alum and Ammonia Company, Limited, Hawgood-street, Bow Common. Mr. David Jackson, architect:—

Irons (accepted)	£296	0	0

For a new infirmary, new board-room and offices, and alterations, at the Steyning Union Workhouse, Shoreham, Sussex. Mr. B. H. Nunn, architect. Quantities supplied:—

Burstow & Burfoot	£5,047	0	0
Nadin	3,995	0	0
Bushby	3,961	0	0
J. & A. Stenning	3,923	18	0
Nash & Co.	3,828	0	0
Watson	3,649	0	0
Smith	3,624	0	0
Lockyer	3,580	0	0
J. Chappel	3,494	0	0
Dalby	3,200	0	0
Miles	3,145	0	0
Blackmore (accepted)	3,099	0	0
W. Chappel (withdrawn)	2,799	0	0

For the erection of three shops in High-road, Turnhamgreen, for Mr. Owen Davies. Mr. E. Monson, jun., architect. Quantities supplied by Mr. Shrubsole:—

Lamb & Son	£1,984	0	0
Stevenson	1,953	0	0
Scholtes	1,687	9	0
Capps & Ritso	1,673	7	0
Harrison & Son	1,590	0	0
Scarlett & Elmer	1,574	0	0
Mansfield	1,563	0	0
Henning & Son	1,545	0	0
Gough	1,496	0	0
Niblett & Son	1,400	0	0
Blick	1,360	0	0
Bysh	1,350	0	0
Barber & Groome	1,329	0	0
J. & R. Whittaker	1,249	0	0
Warr	1,245	0	0
Fanthorpe	1,160	0	0
Too late.			
Day & Beach	1,842	15	4
Nightingale	1,721	0	0
Dover & Co.	1,699	0	0

For the supply of glass cases and plate glass, to be used at the International Exhibition of 1871.

For the Frames.

Drew	£1,725	15	0
Howard & Sons	1,557	1	5
Smith & Co.	1,467	0	0
Lucas, Bros.	1,446	8	0
Johnstone, Jeanes, & Co.	1,315	6	0
Gillow & Co.	1,271	4	8
Sage	1,176	17	10
Holland & Sons (accepted)	1,167	15	6

For the Glass.

Thames Plate Glass Company	£512	11	7
Ramsay	428	11	0
London and Manchester Plate Glass Company	411	0	0
Savoy Glass Company	406	14	0
Birmingham Plate Glass Company	400	6	5
Willmore, Brothers (accepted)	384	16	10

For Nos. 8A and 9, St. George's-place, Knightsbridge, for Mrs. General Blake. Mr. G. Legg, architect. Quantities supplied by Mr. Griffiths:—

				Deduct for Bath Stone.		
King & Sons	£17,000	0	0	£754	0	0
Mansfield & Price	16,533	0	0	745	0	0
Trollope & Sons	16,263	0	0	760	0	0
Condor	15,644	0	0	654	0	0
Jackson & Shaw	15,500	0	0	800	0	0
Patrick & Son	15,157	0	0	500	0	0
Dove, Bros.	15,075	0	0	475	0	0
Myers & Sons	14,823	0	0	530	0	0
Brass	14,678	0	0	690	0	0
Colls & Sons	14,376	0	0	960	0	0
Hill & Sons*	14,155	0	0	650	0	0

* Accepted.

For the erection of a warehouse to be built in Bell-yard, City-road, St. Luke's. Mr. J. W. Reed, architect:—

Macey	£1,849	0	0
West	1,796	0	0
Hyde	1,779	0	0
Eaton & Chapman	1,622	0	0
Brown	1,480	0	0

For a pair of villas, Hazellville-road, Hornsey-lane, N. Mr. J. W. Reed, architect:—

Peatecott	£3,036	0	0
Brown & Sons	2,700	0	0
Tully	2,596	0	0
Wright	2,395	0	0
Collingwood	2,344	0	0
Hawkes	2,334	15	0
Poulson	2,299	0	0
Blease	2,284	0	0
Niblett	2,284	0	0
Blackmore & Morley	2,276	0	0
Cooper	2,274	0	0
Tall	2,222	0	0
Chessum	2,095	0	0
Warr	2,020	16	0
Dyne	1,927	0	0
Hoare	1,796	0	0
Luscombe	1,575	0	0

For New Congregational Church at Broadstairs, for the Rev. A. F. Bennett and the Building Committee. Messrs. E. Habershon & Brock, architects:—

Osborne	£1,440	0	0
Nightingale	1,398	0	0
Wilkins & Son	1,351	0	0
Hiller	1,335	0	0
Barwick	1,328	0	0
Starkie	1,270	0	0
Snell & Trayte	1,045	11	0

TO CORRESPONDENTS.

Architectural Art Classes (cancelled; having appeared elsewhere).—J. W. I. N. (Col. Scott, Upper Kensington Gore, W.).—C. (in type).—Ignoramus (see Weale's Treatise on Mathematical Instruments).—G. S. (the price of a book can always be learnt by a note to the publisher).—J. H.—J. & S.—W. C.—F. T. D.—J. & S.—T. W. T.—Mr. C.—J. W.—W. T. P.—J. B.—W. H. W.—C. E.—S. F. C.—J. K.—Messrs. O'C.—J. H. R.—Dr. W.—S.—T. N.—H. H. S.—T. C.—W. M.—R. R. T.—M. Y. P.—F. C. H.—B. H. N.—T. J. H.—H. J.—E. J.—B. T.—S. S.—Co'. S.—W. B.—W.—W. W.

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Guildford, 26th October, 1870.

SURVEYOR and INSPECTOR of NUISANCES.—Notice is hereby Given that the Bognor Local Board will, on SATURDAY, the 12th day of NOVEMBER next, APPOINT a SURVEYOR and INSPECTOR of NUISANCES for their District. The person appointed will be required to prepare plans and specifications of all sea defence and other works that may be required, and superintend the execution of such works, see that the sea defences, gas lamps, and other property of the Board are kept in good repair, inspect the district as Inspector of Nuisances periodically, attend all Board Meetings, and perform all the other duties of Surveyor and Inspector of Nuisances according to the Board's byelaws. The salary will not exceed 100*l.* per annum. Applications from candidates, stating age, salary required, and particulars of former engagements, and enclosing testimonials must be delivered at the Office of the Local Board before FIVE p.m. on the said 12th day of NOVEMBER.—By order of the Local Board, FREDERICK ELKINS, Clerk.
Bognor, Sussex, 22nd October, 1870.

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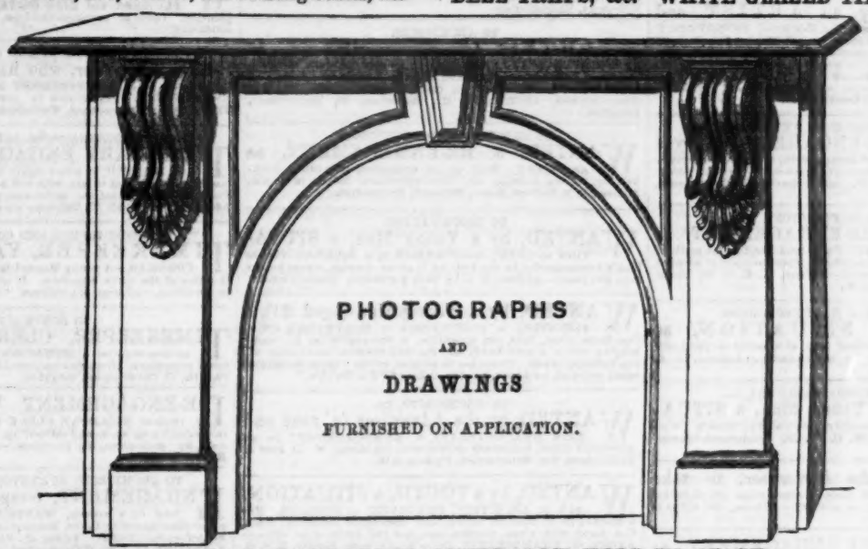

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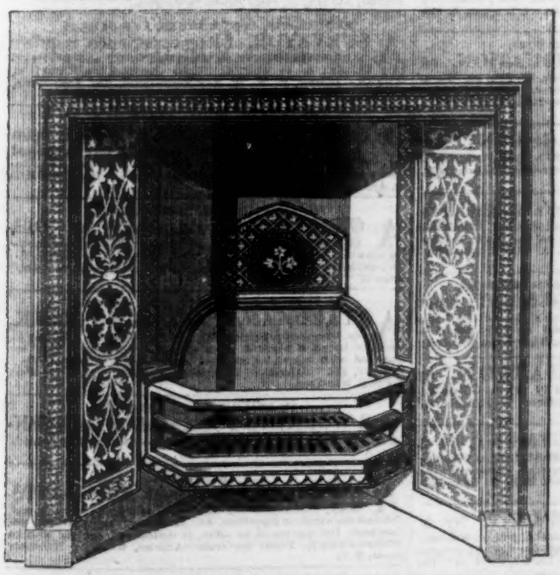

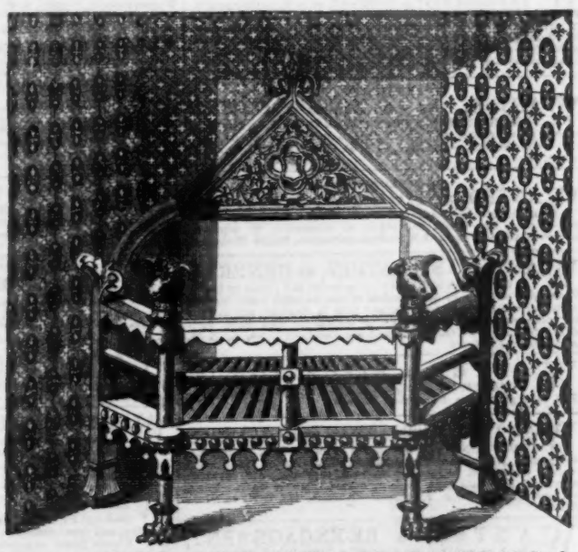

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